CHAPTER - 26

INSTITUTIONS AND MEASURES

26.1 NATIONAL BAMBOO MISSION

- The National Bamboo Mission is a Centrally Sponsored Scheme with 100% contribution from Central Government. It is being implemented by the Horticulture Division under Department of Agriculture and Co-operation in the Ministry of Agriculture, New Delhi.
- Bamboo Mission envisages integration of different Ministries/Departments and involvement of local people/initiatives for the holistic development of bamboo sector in terms of growth of bamboo through increase in area coverage, enhanced yields and scientific management, marketing of bamboo and bamboo based handicrafts, generation of employment opportunities etc.
- The Ministry of Agriculture has formed an Advisory Group for streamlining the development of the Bamboo sector under the restructured National Bamboo Mission (NBM).

26.1.1. Objectives of the Mission

- To promote the growth of bamboo sector through an area based regionally differentiated strategy;
- To increase the coverage of area under bamboo in potential areas, with suitable species to enhance yields;
- To promote marketing of bamboo and bamboo based handicrafts;
- To establish convergence and synergy among stakeholders for the development of bamboo;
- To promote, develop and disseminate technologies through a seamless blend of traditional wisdom and modern scientific knowledge;
- To generate employment opportunities for skilled and unskilled persons, especially unemployed youths.

26.1.2. Strategy of the Mission

- Adopt a coordinated approach covering production and marketing to assure appropriate returns to growers/ producers.
- Promote Research and Development (R&D) of genetically superior clones of suitable species and technologies for enhanced production.
- Enhance acreage (in forest and non-forest areas) and productivity of bamboo through species change and improved cultural practices.
- Promote partnership, convergence and synergy among R&D and marketing agencies in public as well as private sectors, at all levels.
- Promote where appropriate, cooperatives and self-help groups to ensure support and adequate return to farmers.
- Facilitate capacity-building and Human Resource Development.
- Set up National, State and sub-State level structures, to ensure adequate returns for the produce of the farmers and eliminate middlemen, to the extent possible.

26.2 COMPREHENSIVE ENVIRONMENTAL POLLUTION INDEX (CEPI)

- Comprehensive Environmental Pollution Index (CEPI) is a rational number to characterize the environmental quality at a given location following the algorithm of source, pathway, receptor and various parameters like pollutant concentration, impact on human health and level of exposure have been taken into consideration for the calculation of pollution indices for air, water and land.
- The present CEPI is intended to act as an early warning tool. It can help in categorizing the industrial clusters in terms of priority of planning needs for interventions.

Classification of industrial clusters:

CEPI score	status	measures
> 70	critically polluted	detailed investigations and appropriate remedial action
60 – 70	severely polluted	surveillance and implementation of pollution control
< 60	normal	

- The Central and state Pollution Control Board, in collaboration with IIT, Delhi has applied the CEPI for environmental assessment of 88 Industrial Clusters across the country. 43 such industrial clusters having CEPI greater than 70, on a scale of 0 to 100, have been identified as critically polluted.
- The effective implementation of the remedial action plan will help in pollution abatement and to restore the environmental quality of respective industrial clusters and its sustainable use.
- The polluted industrial clusters/areas shall be further explored in order to define the spatial boundaries as well as the extent of eco-geological damages.
- There are still some aspects that need to be improved include, consistency in pollution monitoring data, selection of sampling locations for the environmental monitoring, and collection of data on adverse impact on human population and other geo-ecological features due to industrial pollution.

Do you know?

The National Green Tribunal (NGT) has constituted a high-powered committee of government officials to prepare guidelines for the restoration of the environment and ecology destroyed as a result of coal mining in Meghalaya.

26.3 LIGHTING A BILLION LIVES (

- LaBL is a campaign by TERI that promotes the use of solar lanterns specially designed and manufactured on a decentralized basis.
- LaBL has been able to engage with government interventions under Sarva Shiksha Abhiyan, Madhya Pradesh Rural Livelihood Project, Rasthriya Gramin Vikas Nidhi, and has facilitated the spread of mobile telephony with support from Department of Telecommunications, Government of India.
- LaBL has successfully engaged the private sector and leveraged Corporate Social Responsibility (CSR).
- This initiative has the potential to contribute towards the realization of the Sustainable Development Goals (SDGs) by improving energy access for the rural poor.
- Formation of more than 100 women-led Self Help Groups (SHGs), and strengthening of around 150 SHGs are among the impacts of this initiative.
- The campaign has demonstrated how Public-Private-People partnerships can support rural development schemes, particularly in the areas of health, education, environment and women's empowerment.

- The campaign has drawn support from public sector units and corporate, among its various partners, to aid the execution of the programme at the scale at which it exists today.

26.4 ECO MARK

- The government scheme of labeling of environment friendly products to provide accreditation and labelling for household and other consumer products which meet certain environmental criteria along with quality requirements of the Bureau of Indian Standards for that product.
- Objective - to recognize good environmental performance as well as improvements in performance of the unit
- Any product, which is made, used or disposed of in a way that significantly reduces the harm to environment, could be considered as 'Environment Friendly Product'.
- The project would help in capacity building by conducting training, workshops, seminars, conference etc. on the issues pertaining to the industry and environment interface. This would facilitate the change in attitude of the stakeholders and the industry on the need to support the proactive industry.

URBAN SERVICES ENVIRON-MENTAL RATING SYSTEM (USERS)

- Project funded by UNDP executed by Ministry of Environment and Forests and implemented by TERI.
- Aim - to develop an analytical tool to measure the performance, with respect to delivery of basic services in local bodies of Delhi and Kanpur. (identified as pilot cities).
- Performance measurement (PM) tool was developed through a set of performance measurement indicators that are benchmarked against set targets using the inputs-outputs efficiency outcomes framework.

26.6 BIODIVERSITY CONSERVATION & RURAL LIVELIHOOD IMPROVEMENT PROJECT (BCRLIP)

- Aim - conserving Biodiversity in selected landscapes, including wildlife protected areas/ critical conservation areas while improving rural livelihoods through participatory approaches.
- Development of Joint Forest Management (JFM) and eco-development in some states are models of new approaches to provide benefits to both conservation and local communities.
- The project intends to expand to other globally significant sites in the country to strengthen linkages between conservation and improving livelihoods of local communities that live in the neighborhood of biodiversity rich areas-as well as to enhance the local and national economy.
- The Project would be implemented as a Centrally Sponsored Scheme with five financiers (IDA loan, GEF grant, contributions from Government of India, State Governments and beneficiaries), amounting to around Rs. 137.35 crores, spread over six years.

26.7 NATIONAL CLEAN ENERGY FUND

- 'National Clean Energy Fund' (NCEF) was constituted in the public account of India in the Finance Bill 2010-11.
- Objective - to invest in entrepreneurial ventures and research & innovative projects in the field of clean energy technology.
- The Central Board of Excise and Customs consequently notified the Clean Energy Cess Rules 2010 under which producers of specified goods namely raw coal, raw lignite and raw peat were made liable to pay Clean Energy Cess.
- Any project with innovative methods to adopt to clean energy technology and research & development shall be eligible for funding under the NCEF.

- Government assistance under the NCEF shall in no case exceed 40% of the total project cost.
- Indo-French Project to Study Effects of Climate Change on Farming
- The Indo-French Centre for the Promotion of Advanced Research (CEFIPRA) launched a multi-disciplinary Indo-French research project titled 'Adaptation of Irrigated Agriculture to Climate Change (AICHA).'
- The study aims at developing an integrated model for analysing the impact of climate change on ground water-irrigated agriculture in south India.
- Berambadi village and surrounding areas in Hangla hobli of Gundlupet taluk in Chamaraja nagar district have been selected for a field study under the project.
- The project would explore adaptation strategies based on innovative cropping systems and water resource management policies, by considering a range of scenarios for agricultural systems and policies, to be tested at the farm and the watershed scale.
- The methodology will combine remote sensing, field surveys and advanced numerical analysis with hydrological, agronomical and economic modeling, and will pay particular attention to sustainability and acceptability issues.

26.8 NATIONAL MISSION FOR ELECTRIC MOBILITY

- A National Mission for Electric Mobility (NCEM) to promote electric mobility and manufacturing of electric vehicles in India.
- The setting up of NCEM has been influenced by the following three factors:
- 1.Fast dwindling petroleum resources
- 2.Impact of vehicles on the environment and climate change
- 3.Worldwide shift of the automobile industry towards more efficient drive technologies and alternative fuels including electric vehicles

Barriers

- Higher cost of Electric Vehicles, Challenges in battery technology, Consumer mindset, Inadequate government support
- Objective to resolve these barriers by providing government intervention/support, adoption of mission mode approach for fast decision making and ensuring collaboration amongst various stakeholders.
- The NCEM will be the apex body in the Government of India for making recommendations in these matters.

Do you know?

Under the leadership of NGO. aaranyak's Greater adjutant stork project team, 14 women self-help groups of Dadara village in Kamrup district have formed a 'Hargila (Greater adjutant stork) army', for the conservation and protection of these birds.

26.9 SCIENCE EXPRESS - BIODIVERSITY SPECIAL (SEBS)

- SEBS is an innovative mobile exhibition mounted on a specially designed 16 coach AC train, traveling across India from 5 June to 22 December 2012 (180 days) to create widespread awareness on the unique biodiversity of the country.
- SEBS is the fifth phase of the iconic and path-breaking Science Express.
- The SEBS is a unique collaborative initiative of Department of Science & Technology (DST) and Ministry of Environment & Forests (MoEF), Government of India.
- The state-of-the-art exhibition aboard SEBS aims to create wide-spread awareness on the unique biodiversity of India, Climate Change, Water, Energy Conservation and related issues among various sections of the society, especially students.

26.10 ENVIRONMENT EDUCATION, AWARENESS & TRAINING (EEAT) SCHEME

EEAT a Central Scheme launched during the 6th Five Year Plan in 1983-84 with the following objectives:

1. To promote environmental awareness among all sections of the society.
2. To spread environment education, especially in the non-formal system.
3. To facilitate development of education/training materials and aids in the formal education sector.
4. To promote environment education through existing educational/scientific institutions.
5. To ensure training and manpower development for EEAT.
6. To encourage NGOs, mass media and other concerned organizations for promoting awareness about environmental issues.
7. To use different media (audio & visual) for spreading messages concerning environment and awareness and
8. To mobilize people's participation for preservation and conservation of environment.

1 NATIONAL ENVIRONMENT AWARENESS CAMPAIGN (NEAC)

The NEAC was launched in 1986 with the objective of creating environmental awareness at the national level.

- It is a multi-media campaign which utilises conventional and non-conventional methods of communication for disseminating environmental messages.
- Under this campaign, nominal financial assistance is provided to registered NGOs, schools, colleges, universities, research institutions, women and youth organisations, army units, State Government Departments etc. from all over the country for organising/ conducting awareness raising activities.
- These activities which include seminars, workshops, training programmes, camps, rallies, exhibitions, competitions, folk dances and songs, street theatre, puppet shows, preparation and distribution of environmental education resource materials etc., are followed by action like plantation of trees, management of household waste, cleaning of water bodies etc.

Do you know?

The National Green Tribunal (NGT) has suspended the environment clearance (EC) given to the 780 MW Nyamjang Chhu hydel power project in Arunachal Pradesh.

26.12 ECO-CLUBS (NATIONAL GREEN CORPS)

- The main objectives of this programme are to educate children about their immediate environment and impart knowledge about the eco-systems, their inter-dependence and their need for survival, through visits and demonstrations and to mobilise youngsters by instilling in them the spirit of scientific inquiry into environmental problems and involving them in the efforts of environmental preservation.
- Global Learning and Observations to Benefit the Environment (GLOBE)
- The GLOBE is an International Science and Education Programme, which stress on hands-on participatory approach. India joined this programme during the August, 2000.
- This programme, which unites students, teachers and scientists all over the world, is aimed at school children.
- The students of GLOBE schools are required to collect data about various basic environmental parameters under the supervision of a GLOBE trained teacher and use it for explaining hypothesis as well as to enhance their scientific understanding of the earth.

CHAPTER - 27

ENVIRONMENTAL ORGANIZATIONS

27.1. THE ANIMAL WELFARE BOARD OF INDIA

- The Animal Welfare Board of India is a statutory advisory body on Animal Welfare Laws and promotes animal welfare in the country.
- The Animal Welfare Board of India, the first of its kind to be established by any Government in the world, was set up in 1962, in accordance with Section 4 of the Prevention of Cruelty to Animals Acts 1960.
- Shrimati Rukmini Devi Arundale pioneered the setting up of the Board, with its Headquaters at Chennai. She guided the activities of the Board for nearly twenty years till her demise in 1986.

1.1. Functions

- To keep the law in force in India for the Prevention of Cruelty to Animals under constant study and to advise the government on the amendments to be undertaken in any such law from time to time.
- To advise the Central Government on the making of rules under the Act with a view to preventing unnecessary pain or suffering to animals generally, and more particularly when they are being transported from one place to another or when they are used as performing animals or when they are kept in captivity or confinement.
- To advise the Government or any local authority or other person on improvements in the design of vehicles so as to lessen the burden on draught animals.
- To take all such steps as the Board may think fit for amelioration of animals by encouraging, or providing for the construction of sheds, water troughs and the like and by providing for veterinary assistance to animals.
- To advise the Government or any local authority or other person in the design of slaughter houses or the maintenance of slaughter houses or in connection with slaughter of animals so that unnecessary pain or suffering, whether physical or mental, is eliminated in the pre- slaughter stages as far as possible, and animals are killed, wherever necessary, in as humane a manner as possible.
- To take all such steps as the Board may think fit to ensure that unwanted animals are destroyed by local authorities, whenever it is necessary to do so, either instantaneously or after being rendered insensible to pain or suffering.
- To encourage by the grant of financial assistance or otherwise, the formation or establishment of Pinjarapoles, rescue homes, animals shelters, sanctuaries and the like, where animals and birds may find a shelter when they have become old and useless or when they need protection.
- To co-operate with, and co-ordinate the work of associations or bodies established for the purpose

of preventing unnecessary pain or suffering to animals or for the protection of animals and birds.

- To give financial assistance and other assistance to Animal Welfare Organisations, functioning in any local area or to encourage the formation of Animal Welfare Organisations in any local area which shall work under the general supervision and guidance of the Board.
- To advise the Government on matters relating to the medical care and attention which may be provided in animal hospitals, and to give financial and other assistance to animal hospitals whenever the Board think it is necessary to do so.
- To impart education in relation to the humane treatment of animals and to encourage the formation of public opinion against the infliction of unnecessary pain or suffering to animals and for the promotion of animal welfare by means of lectures books, posters, cinematographic exhibitions and the like.
- To advise the Government on any matter connected with animal welfare or the Prevention of infliction of unnecessary pain or suffering on animals.
- The Board consists of 28 Members. The term of office of Members is for a period of 3 years.

27.2. CENTRAL ZOO AUTHORITY

- The amendment made to the Wild Life (Protection) Act in 1991 added a new chapter dealing with zoos to the Act and allowed for the Central Government to constitute an authority known as the Central Zoo Authority to oversee the functioning and development of zoos in the country. According to the provisions of this chapter, only such zoos which were operated in accordance with the norms and standards prescribed by the Central Zoo Authority would be granted 'recognition' to operate by the Authority.

27.2.1. Functions

- The following are the functions of the Central Zoo Authority as specified in the Act:

1. To specify the minimum standards for housing, upkeep and veterinary care of animals kept in a zoo
2. To evaluate and assess the functioning of zoos with respect to the standards or the norms as are prescribed
3. To recognize and derecognize zoos
4. To identify endangered species of wild animals for purposes of captive breeding and assigning responsibility in this regard to a zoo
5. To co-ordinate the acquisition, exchange and loaning of animals for breeding purposes
6. To ensure maintenance of stud-books of endangered species of wild animals bred in captivity
7. To identify priorities and themes with regard to display of captive animals in a zoo
8. To co-ordinate training of zoo personnel in India and abroad
9. To co-ordinate research in captive breeding and educational programs for the purposes of zoos
10. To provide technical and other assistance to zoos for their proper management and development on scientific lines
11. To perform such other functions as may be necessary to carry out the purposes of this Act with regard to zoos

27.2.2. Powers

- Recognition of zoos
- Permission for acquisition of wild / capti animals
- Cognizance of offences
- Grant of licences, certificate of ownership, recognition, etc

27.3. THE NATIONAL BIODIVERSITY AUTHORITY (NBA) - CHENNAI.

- The National Biodiversity Authority (NBA) was established in 2003 to implement India's Biological Diversity Act (2002).

- The NBA is a Statutory, Autonomous Body and it performs facilitative, regulatory and advisory function for the Government of India on issues of conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources.

27.3.1. Objectives of NBA

- Anybody seeking any kind of intellectual property rights on a research based upon biological resource or knowledge obtained from India has to obtain prior approval of the NBA.
- The NBA will impose benefit-sharing conditions.
- For ensuring equitable sharing of benefits arising from the use of biological resources and associated knowledge, Sections 19 and 21 stipulate prior approval of the National Biodiversity Authority (NBA) before their access.
- Ensures protection to the knowledge of local people relating to biodiversity through measures such as registration of such knowledge.

3.2. Main functions:

The National Biodiversity Authority may-

(a) advise the Central Government on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of benefits arising out of the utilization of biological resources;

(b) advise the State Governments in the selection of areas of biodiversity importance to be notified as heritage sites and measures for the management of such heritage sites;

(c) perform such other functions as may be necessary to carry out the provisions of this Act.

(2) The National Biodiversity Authority may, on behalf of the Central Government, take any measures necessary to oppose the grant of intellectual property rights in any country outside India on any biological resource obtained from India or knowledge associated with such biological resource which is derived from India.

Transfer of biological resource or knowledge

- No person who has been granted approval, shall transfer any biological resource or knowledge associated to others except with the permission of the National Biodiversity Authority
- The National Biodiversity Authority grants approval for transfer, after making enquiries subject to certain terms and conditions including the imposition of charges by way of royalty or for reasons to be recorded in writing, reject the application.
- The NBA gives public notice of approval granted under this section

27.3.3. The State Biodiversity Boards (SBBs)

- The State Biodiversity Boards (SBBs) focus on advising the State Governments on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of the benefits arising out of the utilization of biological resources;
- The SSBs also regulate, by granting of approvals or otherwise requests for commercial utilization or bio-survey and bio-utilization of any biological resource by Indians.
- The local level Biodiversity Management Committees (BMCs)
- The local level Biodiversity Management Committees (BMCs) are responsible for promoting conservation, sustainable use and documentation of biological diversity and chronicling of knowledge relating to biological diversity.

27.4. WILDLIFE CRIME CONTROL BUREAU (WCCB)

- The Government of India constituted a statutory body, the Wildlife Crime Control Bureau on 6th June 2007, by amending the Wildlife (Protection) Act, 1972. The bureau would complement the efforts of the state governments, primary enforcers of the Wildlife (Protection) Act, 1972 and other enforcement agencies of the country.

Functions

(i) Collection, collation of intelligence and its dissemination and establishment of a centralized Wildlife Crime data bank;

(ii) Co-ordination of actions by various enforcement authorities towards the implementation of the provisions of this Act.

(iii) Implementation of obligations under the various international Conventions and protocols

(iv) Assistance to concerned authorities in foreign countries and concerned international organizations to facilitate co-ordination and universal action for wildlife crime control;

(v) Development of infrastructure and capacity building for scientific and professional investigation;

(vi) Advice the Government of India on issues relating to wildlife crimes having national and international ramifications, and suggest changes required in relevant policy and laws from time to time.

- An online Wildlife Crime Database Management System has been established to collect real-time data, facilitating the analysis of wildlife crime trends in India and enabling the development of effective prevention and detection strategies.
- This system has proven successful in trend analysis, aiding in the implementation of preventive measures and the execution of successful operations like Operation SAVE KURMA, THUNDERBIRD, WILDNET, LESKNOW, BIRBIL, THUNDERSTORM, and LESKNOW-II.

27.5. NATIONAL GANGA RIVER BASIN AUTHORITY (NGRBA)

- NGRBA was constituted on February 2009 under the Environment (Protection) Act, 1986.
- The NGRBA is a planning, financing, monitoring and coordinating body of the centre and the states.
- The objective of the NGRBA is to ensure effective abatement of pollution and conservation of the river Ganga by adopting a river basin approach for comprehensive planning and management.
- The Authority has both regulatory and developmental functions. The Authority will take measures for effective abatement of pollution and conservation of the river Ganga in keeping with sustainable development needs.

27.5.1. These include

- Development of a river basin management plan;
- Regulation of activities aimed at prevention, control and abatement of pollution in Ganga to maintain its water quality, and to take measures relevant to river ecology and management in the Ganga basin states;
- Maintenance of minimum ecological flows in river Ganga;
- Measures necessary for planning, financing and execution of programmes for abatement of pollution in the river Ganga including augmentation of sewerage infrastructure, catchment area treatment, protection of flood plains, creating public awareness;
- Collection, analysis and dissemination of information relating to environmental pollution in the river Ganga;
- Investigations and research regarding problems of environmental pollution and conservation of the river Ganga;
- Promotion of water conservation practices including recycling and reuse, rain water harvesting, and decentralised sewage treatment systems;
- Monitoring and review of the implementation of various programmes or activities taken up for prevention, control and abatement of pollution in the river Ganga;
- Issue directions under section 5 of the Environment (Protection) Act, 1986 for the purpose of exercising and performing these functions and for achievement of its objectives.

27.6. WILDLIFE TRUST OF INDIA

- NGO founded: 1998
- Aim: To conserve nature, especially endangered species and threatened habitats, in partnership with communities and governments.
- The Wildlife Trust of India (WTI) is committed to the protection of India's wildlife; it achieves this by working in partnership with local communities and governments on a range of projects, from species rehabilitation to the prevention of the illegal wildlife trade.

27.7. NATIONAL GREEN TRIBUNAL (NGT)

- The Preamble of the act provides for the establishment of a National Green Tribunal for the effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources, including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto (The National Green Tribunal Act, 2010).
- With the establishment of the NGT, India has joined the distinguished league of countries that have a dedicated adjudicatory forum to address environmental disputes.
- India is third country in the world to full fleged green tribunal followed by new Zealand and Australia.
- The specialized architecture of the NGT will facilitate fast track resolution of environmental cases and provide a boost to the implementation of many sustainable development measures.
- NGT is mandated to dispose the cases within six months of their respective appeals.
- [For more details on national green tribunal refer Shankar IAS academy's polity part II material]

CHAPTER - 28

INTERNATIONAL ORGANISATION AND CONVENTIONS

28.1. UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

The United Nations Environment Programme (UNEP) is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system, and serves as an authoritative advocate for the global environment.

Environment Assembly

e United Nations Environment Assembly is the world's highest-level decision-making body on the environment.

The Environment Assembly meets bienniallyin Nairobi, Kenya to set priorities for global environmental policies and develop international environmental law. Through its resolutions and calls to action, the Assembly provides leadership and catalyses intergovernmental action on the environment. Decision-making requires broad participation, and the Assembly provides an opportunity for all peoples to help design solutions to protect the planet.

History of the United Nations Environment Assembly

The United Nations Environment Assembly was created in June 2012 in United Nations Conference on Sustainable Development (RIO+20) as a measure to strengthen and upgrade UN Environment.

The establishment of the Environment Assembly was the culmination of decades of international efforts, initiated at the UN Conference on the Human Environment in Stockholm in 1972 and aimed at creating a coherent system of international environmental governance.

The first and second sessions of the UN Environment Assembly tackled and adopted resolutions on major issues of illegal trade in wildlife, air quality, environmental rule of law, financing the Green Economy, the Sustainable Development Goals, and "delivering on the environmental dimension of the 2030 Agenda for Sustainable Development". It was also a success with the adoption in 2014 of a Ministerial Outcome Document that called for the achievement of "an ambitious, universal implementable and realizable Post-2015 Development Agenda" that integrated all the dimensions of sustainable development for "the protection of the environment and the promotion of inclusive social and economic development in harmony with nature". The Third Environment Assembly took place in 2017 Assembly under the overarching theme "Towards a pollution-free planet". The Assembly addressed five sub-themes: Water Pollution, Land Pollution, Marine Pollution, Air Pollution, and Sound Management of Chemicals and Waste.

It adopted a Ministerial Declaration and adopted 11 resolutions and 3 decisions, calling for accelerated action and strengthened partnerships on, inter alia: combating the spread of marine plastic litter and microplastics; eliminating exposure to lead paint and promoting environmentally sound management of used lead-acid batteries; environment and health; improving air quality globally; pollution control by mainstreaming biodiversity into key sectors; addressing water pollution to protect and restore water-related ecosystems; managing soil pollution to achieve sustainable development; and pollution prevention and control in areas affected by terrorist operations and armed conflicts.

At the fourth session of United Nations Environment Assembly (UNEA) which was held in Nairobi, March 2019, India piloted resolutions, two important global environment issues relating to Single-use Plastics and Sustainable Nitrogen management were adopted with consensus. The theme of the UNEA this year was Innovative Solutions for environmental challenges and sustainable production and consumption.

Sustainable Nitrogen management

The resolution recognizes the multiple pollution threats resulting from anthropogenic reactive nitrogen, with adverse effects on the terrestrial, freshwater and marine environments and contributing to air pollution and greenhouse gas (GHG) emissions, and highlights ways to better manage nitrogen.

The global nitrogen use efficiency is low, resulting in pollution by reactive nitrogen which threatens human health, eco system services, contributes to climate change and stratospheric ozone depletion. The resolution supports exploring options for better management of the global nitrogen cycle to achieve the SDGs.

Champions of the Earth

Champions of the Earth is the highest UN honour in the field of environment. The award recognizes outstanding figures from public and private sector as well as civil society, whose actions have brought about a positive impact and a transformation on environment.

The Champions of the Earth awar[illegible] launched in 2005. The award is pr[illegible] categories – Lifetime Achievement, Policy Leadership, Action and Inspiration, Entr[illegible]eneurial Visi[illegible]d Science & Innovation. Since [illegible] n years ago, the awards have recognized 84 laureates.

Mumbai-based lawyer Afroz Shah received the Champions of the Earth Award 2016 under the 'Action and Inspiration' category for kick-starting a volunteer campaign to clean the Versova beach, Mumbai.

The Prime Minister [illegible] NarendraModi, received the Champions of the Earth Award 2018 for Policy Leadership.

Asia Environment Enforcement Awards

The Asia Environment Enforcement Awards awarded by UNEP publicly recognize and celebrate excellence in enforcement by government officials and institutions/teams combating transboundary environmental crime in Asia.

The awards are given to outstanding individuals and/or government organizations/teams that demonstrate excellence and leadership in enforcement of national laws to combat transboundary environmental crime in one of the following eligibility criteria areas: collaboration; impact; innovation; integrity and gender leadership.

United Nation Environment has awarded Wildlife Crime Control Bureau (WCCB), MoEFCC, GoI with Asia Environment Enforcement Awards, 2018 for excellent work done by the WCCB in combating transboundary environmental crime in Innovation category.

WCCB has adopted innovative enforcement techniques that have dramatically increased enforcement of transboundary environmental crimes in India. It has developed an online Wildlife Crime Database Management System to get real time data in order to help analyze trends in crime and devise effective measures to prevent and detect wildlife crimes across India.

This is the second time in a row the awards are being given by UN Environment to India.

28.2. MAJOR ENVIRONMENT INTERNATIONAL CONVENTIONS

Nature conservation

1. United Nations Conference On Environment And Development (UNCED)
2. Convention on Biological Diversity (CBD)
3. Ramsar Convention on Wetlands
4. Convention on International Trade in Endangered Species of Fauna and Flora (CITES)
5. The Wildlife Trade Monitoring Network (TRAFFIC)
6. Convention on the Conservation of Migratory Species (CMS)
7. Coalition Against Wildlife Trafficking (CAWT)
8. International Tropical Timber Organization (ITTC)
9. United Nations Forum on Forests (UNFF)
10. International Union for Conservation of Nature and Natural Resources (IUCN)
11. Global Tiger Forum (GTF)

Hazardous material

Stockholm Convention

Basel Convention

4. Rotterdam Convention

Land

15. United Nations Convention to Combat Desertification (UNCCD)

Marine environment

16. International Whaling Commission (IWC)

Atmosphere

17. Vienna convention and Montreal Protocol
18. United Nations Framework Convention on Climate Change (UNFCCC)
19. Kyoto Protocol

1. United Nations Conference On Environment And Development (UNCED)

Also known as the Rio Summit, Rio Conference, Earth Summit held in Rio de Janeiro in June 1992.

The issues addressed included:

- Systematic scrutiny of patterns of production – particularly the production of toxic components, such as lead in gasoline, or poisonous waste including radioactive chemicals
- Alternative sources of energy to replace the use of fossil fuels which are linked to global climate change
- New reliance on public transportation systems in order to reduce vehicle emissions, congestion in cities and the health problems caused by polluted air and smog
- The growing scarcity of water

The Earth Summit resulted in the following documents:

- Rio Declaration on Environment and Development
- Agenda 21
- Forest Principles

Moreover, two important legally binding agreements

1. Convention on Biological Diversity
2. Framework Convention on Climate Change (UNFCCC).

The Rio Declaration on Environment and Development, often shortened to Rio Declaration, was a short document produced at the 1992 United Nations "Conference on Environment and Development" (UNCED), informally known as the Earth Summit. The Rio Declaration consisted of 27 principles intended to guide future sustainable development around the world.

Agenda 21

- Agenda 21 is an action plan of the United Nations (UN) related to sustainable development and was an outcome of the United Nations Conference on

Environment and Development (UNCED) held in Rio de Janeiro, Brazil, in 1992.

- It is a comprehensive blueprint of action to be taken globally, nationally and locally by organizations of the UN, governments, and major groups in every area in which humans directly affect the environment.
- The number 21 refers to an agenda for the 21st century.

Local Agenda 21

- The implementation of Agenda 21 was intended to involve action at international, national, regional and local levels. Some national and state governments have legislated or advised that local authorities take steps to implement the plan locally, as recommended in Chapter 28 of the document. Such programmes are often known as 'Local Agenda 21' or 'LA21'.

Agenda 21 for culture

- During the first World Public Meeting on Culture, held in Porto Alegre, Brazil in 2002, it came up with the idea to draw up document guidelines for local cultural policies, a document comparable to what Agenda 21 meant in 1992 for the environment.
- The Agenda 21 for culture is the first document with worldwide mission that advocates establishing the groundwork of an undertaking by cities and local governments for cultural development.

Rio+5

- In 1997, the General Assembly of the UN held a special session to appraise five years of progress on the implementation of Agenda 21 (Rio +5).
- The Assembly recognized progress as 'uneven' and identified key trends including increasing globalization, widening inequalities in income and a continued deterioration of the global environment.

The Johannesburg Summit

- The Johannesburg Plan of Implementation, agreed at the World Summit on Sustainable Development (Earth Summit 2002) affirmed UN commitment to 'full implementation' of Agenda 21, alongside achievement of the Millennium Development Goals and other international agreements.

Rio +20

- "Rio+20" is the short name for the United Nations Conference on Sustainable Development which took place in Rio de Janeiro, Brazil in June 2012 – twenty years after the landmark 1992 Earth Summit in Rio.
- At the Rio+20 Conference, world leaders, along with thousands of participants from the private sector, NGOs and other groups, came together to shape how we can reduce poverty, advance social equity and ensure environmental protection on an ever more crowded planet.
- The official discussions focussed on tw themes:

1. how to build a green economy to achiev sustainable development and lift people out of poverty; and
2. how to improve international coordination for sustainable development.

- AT Rio+20, more than $513 billion was pledged to build a sustainable future. It signaled a major step forward in achieving the future we want.

2. Convention on Biological Diversity (CBD)

- CBD is a Legally binding Convention recognized for the first time, that the conservation of biological diversity is "a common concern of humankind" and is an integral part of the development process. The agreement covers all ecosystems, species, and genetic resources.

Objectives

- The conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

Three main goals:

- The conservation of biodiversity
- Sustainable use of the components of biodiversity
- Sharing the benefits arising from the commercial and other utilization of genetic resources in a fair and equitable way

The Convention acknowledges that substantial investments are required to conserve biological diversity. It argues, however, that conservation will bring us significant environmental, economic and social benefits in return.

Biological Diversity Act, 2002

- The Biological Diversity Act 2002 was born out of India's attempt to realize the objectives enshrined in the United Nations Convention on Biological Diversity (CBD) 1992 which recognizes the sovereign rights of states to use their own Biological Resources.
- An Act to provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.

Objectives

(i) Conservation of biological diversity;

(ii) Sustainable use of its components; and

(iii) Fair and equitable sharing of the benefits arising from the utilization of genetic resources.

- The Act envisages a three-tier structure to regulate access to the biological resources, comprising of National Biodiversity Authority (NBA), State Biodiversity Boards (SBB) and Biodiversity Management Committees (BMC) at the local level.

Cartagena Protocol on Biosafety to the Convention on Biological Diversity

Biosafety refers to the need to protect human health and the environment from the possible adverse effects of the products of modern biotechnology.

The Convention clearly recognizes these twin aspects of modern biotechnology.

1. Access to and transfer of technologies
2. Appropriate procedures to enhance the safety of biotechnology technologies.

Objective

Is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements.

- The Cartagena Protocol on Biosafety is an additional agreement to the Convention on Biological Diversity.
- The Protocol establishes procedures for regulating the import and export of LMOs from one country to another.
- The Protocol also requires Parties to ensure that LMOs being shipped from one country to another are handled, packaged and transported in a safe manner.
- The shipments must be accompanied by documentation that clearly identifies the LMOs, specifies any requirements for the safe handling, storage, transport and use and provides contact details for further information.

There are two main sets of procedures, one for LMOs intended for direct introduction into the environment, known as the advance informed agreement (AIA) procedure, and another for LMOs intended for direct use as food or feed, or for processing (LMOs-FFP).

Advance Informed Agreement

- Under the AIA procedure, a country intending to export an LMO for intentional release into the environment must notify in writing the Party of import before the first proposed export takes place.
- The Party of import must acknowledge receipt of the notification within 90 days and must communicate its decision on whether or not to import the LMO within 270 days.
- Parties are required to ensure that their decisions are based on a risk assessment of the LMO, which must be carried out in a scientifically sound and transparent manner.
- Once a Party takes a decision on the LMO, it is required to communicate the decision as well as a summary of the risk assessment to a central information system, the Biosafety Clearing-House (BCH).

LMOs- food or feed, or for processing

- Under the procedure for LMOs-FFP, Parties that decide to approve and place such LMOs on the market are required to make their decision and relevant information, including the risk assessment reports, publicly available through the BCH.

Nagoya–Kuala Lumpur Supplementary Protocol

- The Cartagena Protocol is reinforced by the Nagoya–Kuala Lumpur Supplementary Protocol on Liability and Redress.
- The Supplementary Protocol specifies response measures to be taken in the event of damage to biodiversity resulting from LMOs.
- The competent authority in a Party to the Supplementary Protocol must require the person in control of the LMO (operator) to take the response measures or it may implement such measures itself and recover any costs incurred from the operator.

Nagoya Protocol

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity is a supplementary agreement to the Convention on Biological Diversity.

It provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD.

Objective

Is the fair and equitable sharing of benefits arising from the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity.

Obligations

The Nagoya Protocol sets out core obligations for its contracting Parties to take measures in relation to access to genetic resources, benefit-sharing and compliance.

Access obligations

- Domestic-level access measures are to:
- Create legal certainty, clarity and transparency
- Provide fair and non-arbitrary rules and procedures
- Establish clear rules and procedures for prior informed consent and mutually agreed terms
- Provide for issuance of a permit or equivalent when access is granted
- Create conditions to promote and encourage research contributing to biodiversity conservation and sustainable use
- Pay due regard to cases of present or imminent emergencies that threaten human, animal or plant health
- Consider the importance of genetic resources for food and agriculture for food security

Benefit-sharing obligations

- Domestic-level benefit-sharing measures are to provide for the fair and equitable sharing of benefits arising from the utilization of genetic resources with the contracting party providing genetic resources.
- Utilization includes research and development on the genetic or biochemical composition of genetic resources, as well as subsequent applications and commercialization.
- Sharing is subject to mutually agreed terms.
- Benefits may be monetary or non-monetary such as royalties and the sharing of research results.

Compliance obligations

Specific obligations to support compliance with the domestic legislation or regulatory requirements of the contracting party providing genetic resources, and contractual obligations reflected in mutually agreed terms, are a significant innovation of the Nagoya Protocol. Contracting Parties are to:

- Take measures providing that genetic resources utilized within their jurisdiction have been accessed in accordance with prior informed consent, and that mutually agreed terms have been established, as required by another contracting party
- Cooperate in cases of alleged violation of another contracting party's requirements
- Encourage contractual provisions on dispute resolution in mutually agreed terms
- Ensure an opportunity is available to seek recourse under their legal systems when disputes arise from mutually agreed terms
- Take measures regarding access to justice
- Take measures to monitor the utilization of genetic resources after they leave a country including by designating effective checkpoints at any stage of the value-chain: research, development, innovation, pre-commercialization or commercialization

Traditional knowledge

- The Nagoya Protocol addresses traditional knowledge associated with genetic resources with provisions on access, benefit-sharing and compliance.
- It also addresses genetic resources where indigenous and local communities have the established right to grant access to them.
- Contracting Parties are to take measures to ensure these communities' prior informed consent, and fair and equitable benefit-sharing, keeping in mind community laws and procedures as well as customary use and exchange.

Importance

The Nagoya Protocol will create greater legal certainty and transparency for both providers and users of genetic resources by:

- Establishing more predictable conditions for access to genetic resources.
- Helping to ensure benefit-sharing when genetic resources leave the contracting party providing the genetic resources

By helping to ensure benefit-sharing, the Nagoya Protocol creates incentives to conserve and sustainably use genetic resources, and therefore enhances the contribution of biodiversity to development and human well-being.

The Biodiversity Target

- It was adopted in May 2002 during the sixth Conference of the Parties to the Convention on Biological Diversity.
- The Target aimed to achieve, by 2010 'a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth'.
- Unfortunately, we were unable to meet the target. As we are facing an ever-increasing biodiversity crisis, we need a new, clear and realistic target to respond to it.

Strategic Plan For Biodiversity 2011-2020

- In the tenth meeting of the Conference of the Parties, held in 2010, in Nagoya, Aichi Prefecture, Japan, adopted a revised and updated Strategic Plan for Biodiversity, including the Aichi Biodiversity Targets, for the 2011-2020 period.
- The tenth meeting of the Conference of the Parties agreed to translate this overarching international framework into national biodiversity strategies and action plans within two years.
- Additionally, the meeting decided that the fifth national reports, due by 31 March 2014, should focus on the implementation of the 2011-2020 Strategic Plan and progress achieved towards the Aichi Biodiversity Targets.

28.4. AICHI BIODIVERSITY TARGETS

Strategic Goal A:

Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

1. By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
2. By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.
3. By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.
4. By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B:

Reduce the direct pressures on biodiversity and promote sustainable use

1. By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.
2. By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.
3. By 2020 areas under agriculture, aquacultu forestry are managed sustainably, en conservation of biodiversity.
4. By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
5. By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
6. By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic Goal C:

To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

1. By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.
2. By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.
3. By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic Goal D:

Enhance the benefits to all from biodiversity and ecosystem services

1. By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.
2. By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.
3. By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic Goal E:

Enhance implementation through participatory planning, knowledge management and capacity building

1. By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.
2. By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.
3. By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

On Aichi targets, India, in 2021, has already set aside over 17.41% of its geographical area for meeting the conservation objectives and more areas are being identified to enhance this coverage. the digital reporting by India has significantly contributed to achieving the global conservation target under Aichi Biodiversity Target-11 and the Sustainable Development Goal-15.

CoP 11 hyderabad

- One of the most important outcomes of the CoP is the commitment of the Parties to double the international financial flows for Bio Diversity by 2015. This will translate into additional financial flows to the developing countries to the tune of about US $ 30 billion equivalent to about Rs. 1,50,000 crore over the next 8 years.
- India has committed US $50 million towards strengthening the institutional mechanism for biodiversity conservation in the country during its presidency of the Convention on Biodiversity (CBD) called the Hyderabad Pledge
- The funds will be used to enhance technical and human capabilities at the national and state-level mechanisms to attain the CBD objectives.
- The country has also earmarked funds to promote similar capacity building in developing countries. India formally took charge of the presidency of CBD from Japan for the next two years on October 8 at the inaugural of the eleventh meeting of the Conference of Parties (CoP 11) to CBD.
- India has instituted together with UNDP Biodiversity Governance Awards. The first such awards were given during the CoP 11. It is now proposed to institute Rajiv Gandhi International Award for Harnessing Biodiversity for Livelihood.

Kunming Declaration

The Kunming Declaration was adopted by over 100 countries on October 13, 2021, at the first part of the virtual 15th meeting of the Conference of the Parties (COP15) to the United Nations Convention on Biological Diversity (UN-CBD).

- This declaration asks the parties to prioritize biodiversity protection in terms of decision-making and recognizing the importance of conservation in protecting human health. The adoption of this declaration aims to create momentum for a new global biodiversity pact.
- By this action, the nations have committed themselves to support the development, adoption, and implementation of an effective post-2020 implementation plan, capacity-building action plan for the Cartagena Protocol on bio-safety.
- Signatory nations will ensure that the post-pandemic recovery policies, programs, and plans contribute to the conservation and sustainable use of biodiversity, promoting sustainable and inclusive development.
- The crucial issues – like funding conservation in poorer countries and committing to biodiversity-friendly supply chains have been left to be discussed later.
- It is not a binding international agreement
- Previously, the Aichi Biodiversity Targets or the Strategic Plan for Biodiversity was adopted, outlining 20 targets to slow down biodiversity loss and protect habitats by 2020.

30 by 30 target

- The declaration referred to the '30 by 30' targe which is a key proposal being debated at the COP15- 30% of the Earth's land and oceans to have protected status by 2030.
- Apart from this, the goal to halve the use of chemicals in agriculture and end creating plastic waste is also being debated.

Kunming biodiversity fund

- The Kunming declaration also includes a fund that is being created by China to fund biodiversity protection actions in developing nations. Thye have pledged to pump USD 233 million into the new fund.

28.5. RAMSAR CONVENTION ON WETLANDS

- The Convention on Wetlands [waterfowl convention] is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.
- It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975, and it is the only global environmental treaty that deals with a particular ecosystem.

- The year 2021 also commemorates the 50th anniversary of the signing of the Ramsar Convention on Wetlands on 2 February 1971 in Ramsar, Iran, celebrated annually as World Wetlands Day.
- Ramsar is not affiliated with the United Nations system of Multilateral Environmental Agreements, but it works very closely with the other MEAs and is a full partner among the "biodiversity-related cluster" of treaties and agreements.
- World Wetlands Day, 2 February every year. Number of Contracting Parties: 163

Mission

"The conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".

"Three pillars" of the Convention

The Parties have committed themselves to:

- Work towards the wise use of all their wetlands through national land-use planning, appropriate policies and legislation, management actions, and public education;
- Designate suitable wetlands for the List of Wetlands of International Importance ("Ramsar List") and ensure their effective management; and
- Cooperate internationally concerning transboundary wetlands, shared wetland systems, shared species, and development projects that may affect wetlands.

The "Ramsar List"

- At the time of joining the Convention, each Contracting Party designates at least one site for inclusion in the List of Wetlands of International Importance (the "Ramsar List").
- The addition of a site to the Ramsar List confers upon it the prestige of international recognition and expresses the government's commitment to take all steps necessary to ensure the maintenance of the ecological character of the site.

Transboundary Ramsar Sites

- An ecologically coherent wetland extends across national borders and the Ramsar site authorities on both or all sides of the border have formally agreed to collaborate in its management, and have notified the Secretariat of this intent.
- This is a cooperative management arrangement and not a distinct legal status for the Ramsar sites involved.

The Montreux Record

- Adopted by the Conference of the Contracting Parties in Brisbane, 1996, accompanying the Guidelines for Operation of the Montreux Record
- The Montreux Record is a register of wetland sites on the List of Wetlands of International Importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference.
- It is the the principal tool of the Convention and is maintained as part of the Ramsar List.

Indian wetland and the Montreux Record

- Keoladeo National Park, Rajasthan and Loktak Lake, Manipur have been included in Montreux Record in 1990 and in 1993 respectively
- Chilika Lake, Orissa included in Montreux Record in 1993 have been removed in November 2002. It is placed on the Montreux Record due to problems caused by siltation and sedimentation which was choking the mouth of the lake; removed from the Record in 2002 following rehabilitation efforts for which the Chilika Development Authority received the Ramsar Wetland Conservation Award for 2002.

"IOPs"

Five global non-governmental organizations (NGOs) have been associated with the treaty since its beginnings and were confirmed in the formal status of International Organization Partners (IOPs) of the Convention.

1. BirdLife International (formerly ICBP)
2. IUCN - The International Union for the Conservation of Nature
3. IWMI - The International Water Management Institute
4. Wetlands International (formerly IWRB, the Asian Wetlands Bureau, and Wetlands for the Americas)
5. WWF (World Wide Fund for Nature) International

The Changwon Declaration on human well-being and wetlands

- The Changwon Declaration highlights positive action for ensuring human well-being and security in the future under the themes - water, climate change, people's livelihood and health, land use change, and biodiversity,

India and wetland convention

- India became a contracting party to the Ramsar Convention in 1981 and has been implementing conservation programmes for wetlands, mangroves and coral reefs.
- India presently has 26 sites designated as Wetlands of International Importance.
- There is close coordination between implementing units of Ramsar with that of CBD at the national level. India took a lead role in the formulation of Ramsar guidelines on integration of wetlands into river basin management.
- The National Conservation Strategy and Policy Statements on Environment and Development (1992) and National Water Policy (2002) highlight conservation and sustainable development of wetlands.

28.6. CITES

- In the early 1960s, international discussion began focusing on the rate at which the world's wild animals and plants were being threatened by unregulated international trade.
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments entered into force in 1975, and became the only treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
- Currently 176 countries are Parties to CITES.
- CITES is administered through the United Nations Environment Programme (UNEP). A Secretariat, located in Geneva, Switzerland, oversees the implementation of the treaty and assists with communications between countries.

Protecting Species from Unsustainable Trade

- Species for which trade is controlled are listed in one of three Appendices to CITES, each conferring a different level of regulation and requiring CITES permits or certificates.

Appendix I:

- Includes species threatened with extinction and provides the greatest level of protection, including restrictions on commercial trade. Examples include gorillas, sea turtles, most lady slipper orchids, and giant pandas.

Appendix II:

- Includes species that although currently not threatened with extinction, may become so without trade controls. It also includes species that resemble other listed species and need to be regulated in order to effectively control the trade in those other listed species.

Appendix III:

- Includes species for which a range country has asked other Parties to help in controlling international trade. Examples include map turtles, walruses and Cape stag beetles.
- Until CoP13, these meeting were held every two years; since then, CoPs are held every three years.
- CoP16 is scheduled to occur from March 3-14, 2013 in Bangkok, Thailand.

CITES Role in Conservation

- Over the last several decades, CITES has helped ensure global conservation of species.
- The Parties have adopted a 5-year strategic vision to guide CITES through 2013.

The plan sets the following goals:

- Ensure compliance with and implementation and enforcement of the Convention.
- Secure the necessary financial resources and means for the operation and implementation of the Convention.
- Contribute to significantly reducing the rate of biodiversity loss by ensuring that CITES and other multilateral instruments and processes are coherent and mutually supportive.

7. TRAFFIC: THE WILDLIFE TRADE MONITORING NETWORK

- TRAFFIC is a joint conservation programme of WWF and IUCN.
- It was established in 1976 by the Species Survival Commission of IUCN, principally as a response to the entry into force during the previous year of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- TRAFFIC is an international network, consisting of TRAFFIC International, based in Cambridge, UK with offices on five continents.
- Since its founding, TRAFFIC has grown to become the world's largest wildlife trade monitoring programme, and a global expert on wildlife trade issues.
- This non-governmental organization undertakes its activities in close collaboration with governments and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Secretariat.

Goal

- To ensure that trade in wild plants and animals is not a threat to the conservation of nature.

Vision

- Is of a world in which trade in wild animals and plants will be managed at sustainable levels without damaging the integrity of ecological systems and in such a manner that it makes a significant contribution to human needs, supports local and national economies and helps to motivate commitments to the conservation of wild species and their habitats.

28.8. CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES (CMS)

- The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention) aims to conserve terrestrial, aquatic and avian migratory species throughout their range.
- It is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Programme, concerned with the conservation of wildlife and habitats on a global scale.
- The Convention's has membership of 117 Parties from Africa, Central and South America, Asia, Europe and Oceania.
- The only global convention specializing in the conservation of migratory species, their habitats and migration routes, CMS complements and co-operates with a number of other international organizations, NGOs and partners in the media as well as in the corporate sector.

Appendix I

- Migratory species threatened with extinction are listed on Appendix I of the Convention.
- CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. Besides establishing obligations for each State joining the Convention, CMS promotes concerted action among the Range States of many of these species.

Appendix II

- Migratory species that need or would significantly benefit from international co-operation are listed in Appendix II of the Convention. For this reason, the Convention encourages the Range States to conclude global or regional Agreements.

CMS as a framework Convention.

- The Agreements may range from legally binding treaties (called Agreements) to less formal instruments, such as Memoranda of Understanding, and can be adapted to the requirements of particular regions.
- The development of models tailored according to the conservation needs throughout the migratory range is a unique capacity to CMS.

India signs Raptor MOU

- The Indian Government has signed 'Raptor MoU', on Conservation of Migratory Birds of Prey in Africa and Eurasia, with the Convention on Conservation of Migratory Species (CMS), or Bonn Convention, under the auspices of the United Nations Environment Programme (UNEP). The CMS aims to conserve migratory species throughout their range.
- India had become a party to the CMS since November 1, 1983. The 'Raptor MoU' 2008, is an agreement under Article IV paragraph 4 of the CMS and is not legally binding. The 'Raptor MoU' extends its coverage to 76 species of birds of prey, out of which 46 species, including vultures, falcons, eagles, owls, hawks, kites, harriers, etc. also occur in India. India has become the 56th signatory State to sign the 'Raptor MoU' in 2016.
- India has also signed non legally binding MOU with CMS on the conservation and management of Siberian Cranes (1998), Marine Turtles (2007) and Dugongs (2008).
- India is temporary home to several migratory animals and birds. The important among these include Amur Falcons, Bar headed Gheese, Black necked cranes, Marine turtles, Dugongs, Humpbacked Whales, etc.
- The Indian sub-continent is also part of the major bird flyway network, i.e., the Central Asian Flyway (CAF) that covers areas between the Arctic and Indian Oceans, and covers at least 279 populations of 182 migratory water bird species, including 29 globally threatened species. India has also launched the National Action Plan for conservation of migratory species under the Central Asian Flyway.

13th COP of CMS

- The 13th Conference of Parties (COP) of the Convention on the conservation of migratory species of wild animals (CMS) is hosted by India in February, 2020 at Gandhinagar in Gujarat. Mascot for 13th COP is GiBi (Great Indian Bustard).
- India assumed COP Presidency of UN Convention on migratory species for the next three years
- India's proposal to include Great Indian Bustard, Asian Elephant and Bengal Florican in Appendix I of UN Convention on migratory species was unanimously accepted in the 13th Conference of the Parties to the Convention on Migratory Spe (CMS) in Gandhinagar.
- The Great Indian Bustard exhibits transboundary movements, and its migration exposes it to threats such as hunting in boundary area of Pakistan-India and power-line collisions in India.
- Asian elephants/Indian elephants migrate over long distances in search of food and shelter, across States and Countries. Some elephants are resident while others migrate regularly in annual migration cycles
- Bengal Florican exhibits transboundary movements, and its migration exposes it to threats such as land use changes, collision with power transmission line at boundary area of India-Nepal and probable power-line collisions.
- Animal culture, the learning of non-human species through socially transmitted behaviours, is being linked to conservation action for the first time. The Convention on the Conservation on Migratory Species of Wild Animals (CMS) has been

spearheading efforts to use scientific knowledge on animal culture, to better protect endangered wildlife.

28.9. COALITION AGAINST WILDLIFE TRAFFICKING (CAWT)

- The Coalition Against Wildlife Trafficking (CAWT) aims to focus public and political attention and resources on ending the illegal trade in wildlife and wildlife products.
- Initiated in 2005, CAWT is a unique voluntary public-private coalition of like-minded governments and organizations sharing a common purpose.

CAWT is leveraging the combined strengths of government and nongovernmental partners to:

- Improve Wildlife Law Enforcement by expanding enforcement training and information sharing and strengthening regional cooperative networks.
- Reduce consumer demand for illegally traded wildlife by raising awareness of the impacts of illegal wildlife trade on biodiversity and the environment, livelihoods, and human health; its links to organized crime; and the availability of sustainable alternatives.
- Catalyse high-level political will to fight wildlife trafficking by broadening support at the highest political levels for actions to combat the illegal trade in wildlife.

The Coalition complements and reinforces existing national, regional and international efforts, including the work of the Convention on International Trade in Endangered Species, which monitors and regulates international trade in endangered and threatened species and their derivatives.

The CAWT organisation is not directly involved in any enforcement activities.

28.10. THE INTERNATIONAL TROPICAL TIMBER ORGANIZATION (ITTO)

- ITTO is an intergovernmental organization, under UN (1986) promoting the conservation and sustainable management, use and trade of tropical forest resources. Its members represent about 80% of the world's tropical forests and 90% of the global tropical timber trade.
- Like all commodity organizations it is concerned with trade and industry, but like an environmental agreement it also pays considerable attention to the sustainable management of natural resources.
- It manages its own program of projects and other activities, enabling it to quickly test and operationalize its policy work.
- ITTO develops internationally agreed policy documents to promote sustainable forest management and forest conservation and assists tropical member countries to adapt such policies to local circumstances and to implement them in the field through projects.
- In addition, ITTO collects, analyses and disseminates data on the production and trade of tropical timber and funds a range of projects and other action aimed at developing industries at both community and industrial scales.

28.11. UNITED NATIONS FORUM ON FORESTS (UNFF)

- The Economic and Social Council of the United Nations (ECOSOC), established the United Nations Forum on Forests (UNFF) In October 2000, a subsidiary body with the main objective to promote "the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end" based on the Rio Declaration, the Forest Principles, Chapter 11 of Agenda 21 and the outcome of the Intergovernmental Panel on Forests (IPF) / Intergovernmental Forum on Forests (IFF) Processes and other key milestones of international forest policy.

The Forum has universal membership, and is composed of all Member States of the United Nations and specialized agencies.

Principal Functions

The following are the principal functions in order to achieve its objective

- To facilitate implementation of forest-related agreements and foster a common understanding on sustainable forest management;
- To provide for continued policy development and dialogue among Governments, international organizations, including major groups, as identified in Agenda 21 as well as to address forest issues and emerging areas of concern in a holistic, comprehensive and integrated manner,
- To enhance cooperation as well as policy and programme coordination on forest-related issues
- To foster international cooperation and
- To monitor, assess and report on progress of the above functions and objectives
- To strengthen political commitment to the management , conservation and sustainable development of all types of forests.
- Enhance the contribution of forests to the achievement of the internationally agreed development goals, including the Sustainable Development Goals, and to the implementation of the Johannesburg Declaration on Sustainable Development and the Plan of Implementation of the World Summit on Sustainable Development, bearing in mind the Monterrey Consensus of the International Conference on Financing for Development;
- Encourage and assist countries, including those with low forest cover, to develop and implement forest conservation and rehabilitation strategies, increase the area of forests under sustainable management and reduce forest degradation and the loss of forest cover in order to maintain and improve their forest resources with a view to enhancing the benefits of forests to meet present and future needs, in particular the needs of indigenous peoples and local communities whose livelihoods depend on forests;
- Strengthen interaction between the United Nations Forum on Forests and relevant regional and subregional forest-related mechanisms, institutions and instruments, organizations and processes, with participation of major groups, as identified in Agenda 21 and relevant stakeholders to facilitate enhanced cooperation and effective implementation of sustainable forest management, as well as to contribute to the work of the Forum

IPF/IFF Process (1995-2000)

- The Intergovernmental Panel on Forests (IPF) and the Intergovernmental Forum on Forests (IFF) represent five years of international forest policy dialogue.
- The Intergovernmental Panel on Forests (IPF), established by the Commission on Sustainable Development (CSD) for two years (1995-97) to provide a forum for forest policy deliberations.
- Subsequently, in 1997, ECOSOC established the Intergovernmental Forum on Forests (IFF), three years (1997-2000).

Global Objectives on Forests

Member States reaffirm the following shared global objectives on forests and their commitment to work globally, regionally and nationally to achieve progress towards their achievement by 2015

The four Global Objectives seek to:

1. Reverse the loss of forest cover worldwide through sustainable forest management (SFM), including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation;
2. Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest-dependent people;
3. Increase significantly the area of sustainably managed forests, including protected forests, and increase the proportion of forest products derived from sustainably managed forests; and
4. Reverse the decline in official development assistance for sustainable forest management and

mobilize significantly-increased new and additional financial resources from all sources for the implementation of SFM.

Non-Legally Binding Instrument on All Types of Forests (NLBI)

- The Seventh Session of the UNFF adopted the Non-Legally Binding Instrument on All Types of Forests on April 2007.
- It is the first time Member States have agreed to an international instrument for sustainable forest management.
- The instrument is expected to have a major impact on international cooperation and national action to reduce deforestation, prevent forest degradation, promote sustainable livelihoods and reduce poverty for all forest-dependent peoples.
- The instrument is voluntary and non-legally binding

12. IUCN

N was founded in October 1948 as the nternational Union for the Protection of Nature (or IUPN) following an international conference in Fontainebleau, France.

The organization changed its name to the International Union for Conservation of Nature and Natural Resources in 1956 with the acronym IUCN (or UICN) with its head quarters in Gland, Switzerland.

Vision

Just world that values and conserves nature.

Missionss

To influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

IUCN supports scientific research, manages field projects globally and brings governments, non-government organizations, United Nations agencies, companies and local communities together to develop and implement policy

IUCN Members include both States and non-governmental organizations.

A neutral forum for governments, NGOs, scientists, business and local communities to find practical solutions to conservation and development challenges.

Priority Areas oF IUCN

- Biodiversity
- Climate change
- Sustainable energy
- Human well-being
- Green economy

Global Initiative on Reducing Land Degradation

The Global Initiative on Reducing Land Degradation aims to strengthen the implementation of existing frameworks to prevent, halt, and reverse land degradation within G20 member states and globally, taking into account possible implications on the achievement of other SDGs and adhering to the principle of doing no harm.

28.13. THE GLOBAL TIGER FORUM (GTF)

The Global Tiger Forum (GTF) is an inter-governmental and international body established with members from willing countries to embark on a worldwide campaign, common approach, promotion of appropriate programmes and controls to save the remaining five sub-species of tigers in the wild distributed over 14 tiger range countries of the world.

Formed in 1994 with its secretariat at New Delhi, GTF is the only inter-governmental & international body campaigning to save the TIGER worldwide.

The General Assembly of GTF shall meet once in three years.

Goal:

To highlight the rationale for tiger preservation and provide leadership and common approach throughout the world in order to safeguard the survival of the tiger, its prey and its habitat.

Objectives:

- To promote a worldwide campaign to save the tiger, its prey and its habitat;
- To promote a legal framework in the countries involved for bio-diversity conservation;
- To increase the protected area network of habitats of the tiger and facilitate their inter passages in the range countries;
- To promote eco-development programmes with the participation of the communities living in and around protected areas;
- To urge countries to enter into relevant conventions for conservation of tiger and elimination of illegal trade;
- To promote and carry out scientific research to generate information useful for tiger, it's prey and its habitat to disseminate such information in an easily accessible manner;
- To promote the development and exchange among themselves , of appropriate technologies and training programmes for scientific wildlife management;
- To encourage range countries to prepare and implement their individual action plans for protection and growth of the tiger population and its prey base. Improvement of the habitat and common preservation programme can be taken up bilaterally by the range countries having adjoining habitats, but their implementation should be carried out separately by the respective range countries.
- To involve inter-governmental organisations in the protection of the tiger;
- To set up a participative fund of an appropriate size to engender awareness in all places where people consume tiger derivatives for eliminating such consumption of tiger products, and identifying substitutes, in the interests of conservation.

Global Tiger Initiative

An alliance of governments, international agencies, civil society, and the private sector united to save wild tigers from extinction

Goals of GTI

- To support capacity-building in governments for responding effectively to the transnational challenge of illegal trade in wildlife and for scientifically managing tiger landscapes in the face of mounting and varied threats;
- To curtail international demand for tiger parts and other wildlife that has been responsible for drastic declines in tiger populations;
- To develop mechanisms for safeguarding habitats from development through planning 's green' infrastructure and sensitive ind development;
- To create innovative and sustainable financi mechanisms for tiger landscapes including protected areas;
- To build strong local constituencies for tiger conservation through development of economic incentives and alternative livelihoods for local people;
- To spread the recognition among governments, international aid agencies and the public that tiger habitats are high-value diverse ecosystems with the potential to provide immense benefits-both tangible and intangible

28.14 THE STOCKHOLM CONVENTION ON POP

The Stockholm Convention on Persistent Organic Pollutants was adopted at a Conference of Plenipotentiaries on 22 May 2001 in Stockholm, Sweden and entered into force on 17 May 2004,

POPs

Persistent Organic Pollutants (POPs) are organic chemical substances, that is, they are carbon-based. They possess a particular combination of physical and chemical properties such that, once released into the environment, they:

- remain intact for exceptionally long periods of time (many years);
- become widely distributed throughout the environment as a result of natural processes involving soil, water and, most notably, air, long range environment transport (LRET).
- accumulate in the fatty tissue of living organisms including humans, and are found at higher concentrations at higher levels in the food chain; and
- are toxic to both humans and wildlife.
- Exposure to POPs can lead to cancer, damage to central & peripheral nervous systems, diseases of immune system, reproductive disorders and interference with normal infant and child development.

In addition, POPs concentrate in living organisms through another process called bioaccumulation. Though not soluble in water, POPs are readily absorbed in fatty tissue, where concentrations can become magnified by up to 70,000 times the background levels.

The 12 initial POPs

Initially, twelve POPs have been recognized as causing adverse effects on humans and the ecosystem and these can be placed in 3 categories:

1. Pesticides: aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene;
2. Industrial chemicals: hexachlorobenzene, polychlorinated biphenyls (PCBs); and
3. By-products: hexachlorobenzene; polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF), and PCBs.

The new POPs under the Stockholm Convention

Nine new POPs

At its fourth meeting held in 2009, the CoP adopted amendments to Annexes A, B and C to the Stockholm Convention to list nine new persistent organic pollutants.

1. Pesticides: chlordecone, alpha hexachlorocyclohexane, beta hexachlorocyclohexane, lindane, pentachloro benzene;
2. Industrial chemicals: hexabromobi phenyl, hexabromodi phenyl ether and heptabromodiphenyl ether, pentachloro benzene, perfluorooctane sulfonic acid, its salts and perfluoro octane sulfonyl fluoride, tetrabromo di phenyl ether and pentabromo di phenyl ether; and
3. By-products: alpha hexachlorocyclohexane, beta hexachlorocyclohexane and pentachloro benzene.

Endosulfan

At its fifth meeting held in 2011, the CoP adopted an amendment to Annex A to the Stockholm Convention to list technical endosulfan and its related isomers with a specific exemption.

India and POPs

- India had ratified the Stockholm Convention on 2006 as per Article 25(4), which enabled it to keep itself in a default "opt-out" position such that amendments in various Annexes of the convention cannot be enforced on it unless an instrument of ratification/ acceptance/ approval or accession is explicitly deposited with UN depositary.
- MoEFCC had notified the 'Regulation of Persistent Organic Pollutants Rules, on March 2018 under the provisions of Environment (Protection) Act, 1986.
- The regulation inter alia prohibited the manufacture, trade, use, import and export seven chemicals namely (i) Chlordecone, (ii) Hexabromobiphenyl, (iii) Hexabromodiphenyl ether and Heptabromodiphenylether (Commercial octa-BDE), (iv) Tetrabromodiphenyl ether and

Pentabromodiphenyl ether (Commercial penta-BDE), (v) Pentachlorobenzene, (vi) Hexabromocyclododecane, and (vii) Hexachlorobutadiene, which were already listed as POPs under Stockholm Convention.

- It also indicates the resolve of the Government to take action on POPs by implementing control measures, develop and implement action plans for unintentionally produced chemicals, develop inventories of the chemicals' stockpiles and review as well as update its National Implementation Plan (NIP).
- The ratification process would enable India to access Global Environment Facility (GEF) financial resources in updating the NIP.
- The Cabinet further delegated its powers to ratify chemicals under the Stockholm Convention to Union Ministers of External Affairs (MEA) and (MEFCC) in respect of POPs already regulated under the domestic regulations thereby streamlining the procedure.

28.15 BASEL CONVENTION

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted on 22 March 1989 by the Conference of Plenipotentiaries in Basel, Switzerland, in response to a public outcry following the discovery, in the 1980s, in Africa and other parts of the developing world of deposits of toxic wastes imported from abroad.

Objective

To protect human health and the environment against the adverse effects of hazardous wastes. Its scope of application covers a wide range of wastes defined as "hazardous wastes" based on their origin and/or composition and their characteristics, as well as two types of wastes defined as "other wastes" - household waste and incinerator ash.

Principal aims:

- The reduction of hazardous waste generation and the promotion of environmentally sound management of hazardous wastes, wherever the place of disposal;
- the restriction of transboundary movements of hazardous wastes except where it is perceived to be in accordance with the principles of environmentally sound management; and
- a regulatory system applying to cases where transboundary movements are permissible.

Waste under the Basel Convention

Wastes are substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law.

Annex

Annex I of the Convention, as further clarified in Annexes VIII and IX, lists those wastes that are classified as hazardous and subject to the control procedures under the Convention.

Annex II of the Convention identifies those wastes that require special consideration (known as "other wastes", and which primarily refer to household wastes).

Examples of wastes regulated by the Basel Convention

- Biomedical and healthcare wastes
- Used oils
- Used lead acid batteries
- Persistant Organic Pollutant wastes (POPs waste
- Polychlorinated Biphenyls (PCBs),
- Thousands of chemical wastes generated by industries and other consumers

28.16 ROTTERDAM CONVENTION

- It was adopted in 1998 by a Conference of Plenipotentiaries in Rotterdam, the Netherlands and entered into force on 24 February 2004.
- The Convention creates legally binding obligations for the implementation of the Prior Informed

Consent (PIC) procedure. It built on the voluntary PIC procedure, initiated by UNEP and FAO in 1989 and ceased on 24 February 2006.

- The Convention covers pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons by Parties and which have been notified by Parties for inclusion in the PIC procedure.

Objectives:

- to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm;
- to contribute to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties.

ex III Chemicals

- The chemicals listed in Annex III include pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons by two or more Parties and which the Conference of the Parties has decided to subject to the PIC procedure.
- There are a total of 43 chemicals listed in Annex III, 32 are pesticides (including 4 severely hazardous pesticide formulations) and 11 industrial chemicals.

One notification from each of two specified regions triggers consideration of addition of a chemical to Annex III of the Convention. Severely hazardous pesticide formulations that present a risk under conditions of use in developing countries or countries with economies in transition may also be proposed for inclusion in Annex III.

CHEMICAL SAFETY

- Government has notified two rules viz. Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 for ensuring chemical safety in the Country. These Rules delineate the criteria for identification of Major Accident Hazard (MAH) unit, As per these Rules, an off-site emergency plan for a district having MAH unit is required to be in place so as to mitigate the impact of chemical accidents. As per the information received from various Sate and Union Territories, there are 1,861 MAH units in the Country, located in 303 districts.

28.17. UNCCD

- Established in 1994, UNCCD is the sole legally binding international agreement linking environment and development to sustainable land management.
- The UNCCD is particularly committed to a bottom-up approach, encouraging the participation of local people in combating desertification and land degradation.
- The United Nations Convention to Combat Desertification (UNCCD) is one of the Rio Conventions that focuses on desertification, land degradation and drought (DLDD).
- 'Desertification' as defined in the UNCCD refers to land degradation in the drylands (arid, semi arid and dry sub humid regions) resulting from various factors and does not connote spread or expansion of deserts.
- UNCCD with 194 Parties is a unique instrument that recognises land degradation as an important factor affecting some of the most vulnerable people and ecosystems in the world.
- The convention aims at adaption and can, on implementation, significantly contribute to achieving the Sustainable Development Goals (SDGs), as well as sustainable development and

poverty reduction by means of arresting and reversing land degradation.

- The convention promotes sustainable land management (SLM) as solution to global challenges. Land degradation is long-term loss of ecosystem function and productivity caused by disturbances from which the land cannot recover unaided. While Sustainable Land Management is focused on changes in land cover/land use in order to maintain and enhance ecosystems functions and services.

UNCCD COP 14

- The 14thConference of the Parties to the UN Convention to Combat Desertification (UNCCD COP 14) convened in New Delhi, India, September 2019.
- The adopted decisions included guidance on how to implement four thematic policy frameworks approved at the last COP, addressing drought, gender, sand and dust storms, as well as desertification, land degradation and drought (DLDD) as a driver for migration.
- The COP also agreed to include land tenure as a new thematic area under the Convention.Other initiatives launched at COP 14 included: a road map for scaling up the Africa-led Great Green Wall Initiative to restore 100 million hectares of land and create 10 million green jobs by 2030; the new UNCCD interactive Drought Toolbox that serves to strengthen countries' preparedness and resilience; and an international coalition on sand and dust storms aimed at mitigating their transboundary impacts on human health, the environment and key economic sectors.
- India announced its commitment to enhance implementation of the UNCCD through, among other actions: establishing a center of excellence to promote South-South exchange; raising its 2030 land restoration target from 21 million hectares to 26 million hectares; and taking into consideration land-based solutions for climate action and biodiversity conservation and the mutually supportive implementation of the three Rio conventions.

28.18. INTERNATIONAL WHALING COMMISSION

- The International Whaling Commission is the global intergovernmental body charged with the conservation of whales and the management of whaling with headquarters in Cambridge, United Kingdom.
- It was set up under the International Convention for the Regulation of Whaling which was signed in Washington DC on 2nd December 1946

Preamble

To provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry.

- Main duty
- To keep under review and revise as necessary the measures laid down in the Schedule to the Convention which govern the conduct of whaling throughout the world.
- These measures, among other things, provide for the complete protection of certain species; designate specified areas as whale sanctuaries; set limits on the numbers and size of whales which may be taken; prescribe open and closed seasons and areas for whaling; and prohibit the capture of suckling calves and female whales accompanied by calves.
- The compilation of catch reports and other statistical and biological records is also required.
- In 1986 the Commission introduced zero catch limits for commercial whaling. This provision is still in place today, although the Commission continues to set catch limits for aboriginal subsistence whaling.
- As well as keeping whale catch limits under review, the Commission works to promote the recovery of depleted whale populations by addressing a range of specific issues. These include ship strikes, entanglement events, environmental concerns and establishing protocols for whale watching.

28.19. VIENNA CONVENTION

- Vienna convention adopted in the year 1985 and entered into force in 1988.
- It acts as a framework for the international efforts to protect the ozone layer however it does not include legally binding reduction goals for the use of CFCs.
- The Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer are dedicated to the protection of the earth's ozone layer. With 197 parties, they are the most widely ratified treaties in United Nations history.

Montreal Protocol

- The Montreal Protocol on Substances that Deplete the Ozone Layer was designed to reduce the production and consumption of ozone depleting substances in order to reduce their abundance in the atmosphere, and thereby protect the earth's fragile ozone Layer.

  The treaty was opened for signature on September 16, 1987, and entered into force on January 1, 1989, followed by a first meeting in Helsinki, May 1989. Since then, it has undergone seven revisions, in 1990 (London), 1991 (Nairobi), 1992 (Copenhagen), 1993 (Bangkok), 1995 (Vienna), 1997 (Montreal), and 1999 (Beijing).

India and Protection of Ozone Layer

- India became a Party to the Vienna Convention for the Protection of Ozone Layer on 19 June 1991 and the Montreal Protocol on substances that deplete the ozone layer on 17 September 1992.
- Consequently, it ratified the Copenhagen, Montreal and Beijing Amendments in 2003.
- India produces CFC-11, CFC-12, CFC-113, Halon-1211, HCFC-22, Halon-1301, Carbontetrachloride (CTC), methyl chloroform and methyl bromide. These ozone Depleting Substances (ODS) are used in refrigeration and air conditioning, fire fighting, electronics, foams,aerosol fumigation applications.
- A detailed India Country Programme for phase out of ODS was prepared in 1993 to ensure the phase out of ODS according to the national industrial development strategy, without undue burden to the consumers and the industry and for accessing the Protocol's Financial Mechanism in accordance with the requirements stipulated in the Montreal Protocol.
- The Ministry of Environment and Forests established an Ozone Cell and a steering committee on the Montreal Protocol to facilitate implementation of the India Country Programme for phasing out ODS (ozone depleting substances) production by 2010.
- In order to meet the objectives of the Protocol, the Indian government has granted full exemption from payment of Customs and Central Excise Duties on import of goods designed exclusively for non-ODS technology.
- India has also been facilitating implementation of the Montreal Protocol in South and South East Asia and the Pacific regions.

28.20. KIGALI AGREEMENT

- Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer held in Kigali, Rwanda amended the 1987 Montreal Protocol to phase out Hydrofluorocarbons (HFCs).
- Chlorofluorocarbons (CFCs) were discontinued under the Montreal Protocol when scientists realised they were destroying the ozone layer.
- HFCs were introduced in the 1990s as an alternative to replace chemicals that had been found to erode the ozone layer, but turned out to be catastrophic for global warming.
- HFCs - though they are greenhouse gases like carbon dioxide, methane and nitrous oxide - are not dealt with under the Paris Agreement but under the Montreal Protocol.
- The elimination of HFCs could reduce global warming by 0.5 degrees by 2100, according to a

2015 study by the Institute for Governance and Sustainable Development.

- However, swapping HFCs for alternatives such as ammonia, water or gases called hydrofluoroolefins could prove costly for developing countries with high summer temperatures, such as India.
- The Kigali Agreement for HFCs reduction will be binding on countries from 2019.
- Under legally binding Kigali Amendment, 197 countries have agreed to a timeline to reduce the use of HFCs by roughly 85% of their baselines by 2045.
- Group 1 - Developed countries must reduce their use of HFCs by 10 percent by 2019 from 2011-2013 levels, and then by 85 percent by 2036.
- A second group of developing countries, including China and African nations, are committed to launching the transition in 2024.
- A reduction of 10 percent compared with 2020-2022 levels should be achieved by 2029, to be extended to 80 percent by 2045.
- A third group of developing countries, which include India, Pakistan, Iran, Iraq and Arab Gulf states, must begin the process in 2028 and reduce emissions by 10 percent by 2032 from 2024-2026 levels, and then by 85 percent by 2047.
- Kigali agreement ratified in 2021.

28.20.1. India phase out hcfc 141 b

- India has successfully achieved the complete phase out of Hydrochlorofluorocarbon (HCFC)-141 b
- HCFC-141b is a chemical used mainly as a blowing agent in the production of rigid polyurethane (PU) foams and one of the most potent ozone depleting chemical after Chlorofluorocarbons (CFCs).
- Nearly, 50 % of the consumption of ozone depleting chemicals in the country was attributable to HCFC-141 b in the foam sector.
- The polyurethane foam sector has links with important economic sectors related to buildings, cold storages and cold chain infrastructure, automobiles, commercial refrigeration, domestic appliances such as refrigerators, water geysers, thermo ware, office and domestic furniture applications, specific high value niche applications etc.
- HCFC-141b is not produced in the country and all the domestic requirements are met through imports. MoEFCC prohibited import license for HCFC-141b under Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2019 issued under the Environment (Protection) Act, 1986.
- Simultaneously, the use of HCFC-141 b by foam manufacturing industry has also been closed under the Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2014.
- The Ministry adopted a structured approach to engage with foam manufacturing enterprises for providing technical and financial assistance in order to transition to non-ODS and low GWP technologies under HCFC Phase out Management Plan (HPMP).
- The phase out of HCFC-141b from the country has twin environmental benefits viz. (i) assisting the healing of the stratospheric ozone layer, and (ii) towards the climate change mitigation due to transitioning of foam manufacturing enterprises at this scale under HPMP to low global warming potential alternative technologies.

28.21. GLOBALLY IMPORTANT AGRICULTURAL HERITAGE SYSTEMS

The FAO recognizes the agricultural heritage regions of the world under a programme titled Globally Important Agricultural Heritage Systems (GIAHS). The purpose of GIAHS is to recognize "Remarkable land use systems and landscapes which are rich in globally significant biological diversity evolving from the co-adaptation of a community with its environment and its needs and aspirations for sustainable development".

In our country so far the following sites have received recognition under this programme:

1. Traditional Agricultural System, Koraput, Odisha

2. Below Sea Level Farming System, Kuttanad, Kerala

In the Koraput system, women have played a key role in the conservation of biodiversity. The Kuttanad system was developed by farmers over 150 years ago to ensure their food security by learning to cultivate rice and other crops below sea level. The Kuttanad System is now attracting worldwide attention since one of the effects of global warming is sea level rise. It has therefore been an act of vision on the part of Kerala government to have decided to set up an International Research and Training Centre for Below Sea Level Farming in Kuttanad.

28.22. MINAMATA CONVENTION

The Minamata Convention on Mercury is a global treaty to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. It was adopted in 2013 in Kumamoto, Japan. It also controls the trans-boundary movement of mercury. It does not include natural emissions of mercury.

Mercury is considered to be one of the most toxic metals known. Once released into the environment, mercury bio-accumulates and bio-magnifies up in the food chain, and easily enters the human body and impacts the nervous system.

The Minamata Convention requires that party nations:

- Reduce and where feasible eliminate the use and release of mercury from artisanal and small-scale gold mining.
- Control mercury air emissions from coal-fired power plants, coal-fired industrial boilers, certain non-ferrous metals production operations, waste incineration,and cement production.
- Phase-out or take measures to reduce mercury use in certain products such as batteries, switches, lights, cosmetics, pesticides and measuring devices, and create initiatives to reduce the use of mercury in dental amalgam.
- Phase out or reduce the use of mercury in manufacturing processes such as chlor-alkali production, vinyl chloride monomer production, and acetaldehyde production.
- In addition, the Convention addresses the supply and trade of mercury; safer storage and disposal, and strategies to address contaminated sites.
- The Convention includes provisions for technical assistance, information exchange, public awareness, and research and monitoring. It also requires Parties to report on measures taken to implement certain provisions. The Convention will be periodically evaluated to assess its effectiveness in meeting its objective of protecting human health and the environment from mercury pollution.

The Minamata Convention entered into force on August 2017. The first CoP to the Minamata Convention on Mercury (COP1) took place in September 2017 at the International Conference Centre in Geneva. The COP 2 will take place in November 2018 in Geneva, Switzerland

The Union Cabinet has approved the proposal for ratification of Minamata Convention on Mercury along with flexibility for continued use of mercury-based products and processes involving mercury compound up to 2025 and depositing the instrument of ratification enabling India to become a Party of the Convention.

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CHAPTER - 29

ENVIRONMENT ISSUES AND HEALTH EFFECTS

29.1. TOXICOLOGY EFFECTS

Eco-toxicology is "a study of the effects of released pollutants on the environment and on the biota that inhabit it.

29.1.1. Rem

It gives an indication of biological damage. It is an estimate of the amount of radiation of any type which produces the same biological injury in man as that resulting from the absorption of a given amount of X-ray radiation or gamma radiation.

9.1.2. Iodine - 131

odine - 131 produced by nuclear tests is passed to vegetation and then appears in milk of the cattle that consume the contaminated vegetation and is passed to humans. Iodine-131 causes serious damage to thyroid gland, especially among children.

About 99% of long-term radioactivity from either strontium or radium taken into the human body is found in the bones.

29.1.3. Lead

Lead is highly toxic to plants and animals including man. Lead generally affects children more severely than adults. Lead poisoning causes a variety of symptoms. These include liver and kidney damage, reduction in hemoglobin formulation, mental retardation and abnormality in fertility and pregnancy. Symptoms of chronic lead-poisoning are of three general types.

Gastrointestinal troubles - most common in industrial workers includes intestinal stress.

Neuromuscular effects - collectively called lead palsy, and impairment of muscle metabolism resulting into residual paralysis and muscular atrophy.

Central nervous system effects - CNS syndrome - a panoply of nervous system disorders, they may lead to delirium, convulsions coma and death.

29.1.4. Mercury

This is the most common and most toxic in water bodies. It occurs in water as monomethyl mercury. Most industrial effluents have mercury. Methyl mercury vapours cause fatal poisoning.

High levels of mercury in fish stocks have been found, mainly in coastal areas. Mumbai, Kolkata, Karwar (in Karnataka) and North Koel (in Bihar) are some of the severely affected areas.

The recent popularity of energy efficient compact to fluorescent lamps or CFLs has added another dimension to the controversy.

Toxicity of mercury is much greater than any other substance, about 1000 times more potent than colchicines.

29.1.5. Fluorine

It occurs in nature as fluoride, in air, soil and water. Fluorisis is a common problem in several states of the country due to intake of high fluoride content water. Fluorides cause dental fluorisis, stiffness of joints (particularly spinal cord) causing humped back. Pain in bones and joint and outward bending of legs from the knees is called Knock-Knee syndrome. In cattle, fluoride intake causes staining, mottling and abrasion of teeth, lameness and decrease in milk production.

29.1.6. DDT

Toxic pesticides as BHC, PCB, DDT etc., are not easily degraded and are long-lasting in the environment. Their concentration therefore goes on increasing in water and soil with successive applications.

DDT was sprayed for many years on marshes to control mosquitoes.

The DDT has bio-magnified from water to fish eating birds and humans. DDT is known to depress the activity of estrogen, the female sex hormone and testosterone, male sex hormone. Fish die due to eating of DDT-killed insects; turtles die because of eating DDT-killed fish and so on. DDT deposited in butter fat of milk is a potential danger to infants.

The end result of DDT use is that whole population of predatory birds such as the fist hawk (osprey) and of detritus feeders as fiddler crab are wiped out. Birds are more vulnerable as DDT interferes with egg shell formation by causing a breakdown in steroid hormones which results in fragile eggs that break before the young can hatch.

29.1.7. Lead in Paints

- Modern houses are full of harmful chemicals. One of them is lead, present in paints.
- Though several countries have banned the use of this substance India is yet to do so, which is why paint makers use them.
- Inhaling lead dust like opening or closing windows is the most common source of lead poisoning.
- The human body is not designed to process lead. Young children are particularly vulnerable to lead as it can damage the central nervous system and the brain.
- If lead is so poisonous why do paint makers continue to use it? Using lead susbtitutes increases the cost and also reduces paint performance.

29.1.8. Transfat

- Transfats are formed during the process of addition of hydrogen atoms to oils, a process which industry prefers as it keeps the oil from turning rancid and ensures a longer shelf life. (E.g trans-fatty acid in vanaspati).
- Transfats are associated with a host of serious health problems ranging from diabetes to heart disease to cancer.
- The health ministry in 2008 came out with a notification for labelling food including trans fats.
- Junk food high in transfats, salt and sugar, junk food gives no nutrition. In fact, getting addicted to it is making the young vulnerable to hypertension, heart diseases, diabetes and obesity.
- The Food Safety and Standards Authority of India (FSSAI) has stated that all food items should contain less than 2% of trans fat from Jan 2022.
- World Health Organization released REPLACE, a step-by-step guide for the elimination of industrially-produced trans-fatty acids from the global food supply.

29.1.9. High Caffeine In Energy Drinks

- Energy drinks are in controversy because of its high caffeine content. Most of these brands have upto 320 ppm of caffeine in them. These drinks are marketed as an instant source of energy.

- The manufacturers claim that it is the combination of caffeine, taurine, glucoronolactone, vitamins, herbal supplements, and sugar or sweeteners that gives the energy.
- According to study reports, it is the sugar that gives the energy rush, the caffeine only gives a 'feeling' of energy.
- Energy drinks fall under the category of 'Proprietary foods' in the Prevention of Food Adulteration (PFA) Act of 1954.
- An amendment in the PFA act 2009 ensured that caffeine in energy drinks should be capped at 145 ppm, the limit that was set for carbonated beverages.
- However, Red Bull managed to get a stay order on the amendment of the PFA act in 2010 and since then the energy drink market is expanding unregulated.
- The Food Safety and Standards Authority of India (FSSAI) is currently making regulations on energy drinks.

.1.10. Pesticide In Human Blood

- Pesticides are commonly used in India but this comes at great cost to human health. It found that 15 different pesticides in the 20 blood samples tested from four villages in Punjab.

Testing Of Pesticide Toxicity

- All pesticides are tested to establish toxicity – a dose necessary to produce a measurable harmful effect, it is usually established through tests on mice, rats, rabbits and dogs.
- Results are then extrapolated on humans, and safe exposure levels predicted.
- The value commonly used to measure acute toxicity is LD 50 (a lethal dose in the short term; the subscript 50 indicates the dose is toxic enough to kill 50 per cent of lab animals exposed to the chemical). LD 50 values are measured zero onwards; the lower the LD 50 the more acutely toxic the pesticide.
- To illustrate, comparison of DDT – most used in India up to the early 1990s – with monocrotophos, currently most used.
- DDT' S LD 50 is 113 mg/kg; monocrotophos, 14 mg/kg. But never forget that lower LD 50 means higher acute toxicity.
- Pesticides once ingested, accumulate in the body fat or pass through. Organochlorine pesticides, for instance, accumulate in body fat and blood lipids. These fat-soluble chemicals persist in the body for many years.

29.2. DISEASES CAUSED BY ENVIRONMENTAL DEGRADATION

a) Minamata disease

- Minamata disease was first discovered in Minamata city in Kumamoto prefecture, Japan in 1956.
- It was caused by the release of methyl mercury in the industrial wastewater from the Chisso Corporation's chemical factory, which continued from 1932 to 1968.
- It is also referred to as Chisso-Minamata disease, is a neurological syndrome caused by severe mercury poisoning.
- Symptoms include ataxia, numbness in the hands and feet, general muscle weakness, narrowing of the field of vision and damage to hearing and speech. In extreme cases, insanity, paralysis, coma, and death follow within weeks of the onset of symptoms. A congenital form of the disease can also affect fetuses in the womb.
- This highly toxic chemical bioaccumulated in shellfish and fish in Minamata Bay and the Shiranui Sea, which when eaten by the local

populace resulted in mercury poisoning. While cat, dog, pig, and human deaths continued over more than 30 years, the government and company did little to prevent the pollution.

b) Yokkaichi asthma

- Disease occurred in the city of Yokkaichi in Mie Prefecture, Japan between 1960 and 1972.
- The burning of petroleum and crude oil released large quantities of sulfur oxide that caused severe smog, resulting in severe cases of chronic obstructive pulmonary disease, chronic bronchitis, pulmonary emphysema, and bronchial asthma among the local inhabitants.

c) Itai-itai disease

- Itai-itai disease was the documented case of mass cadmium poisoning in Toyama Prefecture, Japan, starting around 1912.
- The cadmium poisoning caused softening of the bones and kidney failure.
- The cadmium was released into rivers by mining companies in the mountains. The mining companies were successfully sued for the damage

d) Blue baby syndrome

- It is believed to be caused by high nitrate contamination in ground water resulting in decreased oxygen carrying capacity of hemoglobin in babies leading to death.
- The groundwater is thought to be contaminated by leaching of nitrate generated from fertilizer used in agricultural lands and waste dumps.
- It may also be related to some pesticides (DDT, PCBs etc), which cause eco toxicological problems in the food chains of living organisms, increasing BOD, which kills aquatic animals.

e) Pneumoconiosis

- The coal miners are frequently caught by the black lung disease, which is also called as Pneumoconiosis
- Pneumoconiosis is caused due to the deposit of coal dust in the lungs of coal miners, leads to a serious lung disease called as Black Lung disease.

f) Asbestosis

- Workers working in the asbestos industry are caught by the serious lung disease called as asbestosis.

g) Silicosis

- It is caused due to the deposit of silica in the lungs of workers working in silica industries or at the sand blasting sites

h) Emphysema

- The breaking down of sensitive tissue of lungs due to air pollution and smoke of cigarette is called as Emphysema. Once this disease happens, the lungs cannot expand and contract properly

i) Sick Building Syndrome (SBS)

- Sick building syndrome (SBS) is a combination of ailments (a syndrome) associated with an individual's place of work or residence.
- Most of the sick building syndrome is related to poor indoor air quality.
- Sick building causes are frequently pinned down to flaws in the heating, ventilation, and air conditioning (HVAC) systems. Other causes have been attributed to contaminants produced by out gassing of some types of building materials, volatile organic compounds (VOC), molds, improper exhaust ventilation of ozone, light

industrial chemicals used within, or lack of adequate fresh-air intake air filtration

29.3. MISCELLANEOUS TOPICS

29.3.1. International Standards and Environment

- The ISO 14000 environmental management standards exist to help organizations
  - Minimize how their operations (processes etc.) negatively affect the environment (i.e. cause adverse changes to air, water, or land)
  - Comply with applicable laws, regulations, and other environmentally oriented requirements,
  - Continually improve in the above.
- ISO 14000 is similar to ISO 9000 quality management in that both pertain to the process of how a product is produced, rather than to the product itself.
- As with ISO 9000, certification is performed by third-party organizations rather than being awarded by ISO directly.
- The ISO 19011 audit standard applies when auditing for both 9000 and 14000 compliance at once.
- List of ISO 14000 series standards
  - ISO 14001 Environmental management systems–Requirements with guidance for use
  - ISO 14004 Environmental management systems–General guidelines on principles, systems and support techniques
  - ISO 14015 Environmental assessment of sites and organizations
  - ISO 14020 series (14020 to 14025) Environmental labels and declarations
  - ISO 14030 discusses post production environmental assessment
  - ISO 14031 Environmental performance evaluation–Guidelines
  - ISO 14040 series (14040 to 14049), Life Cycle Assessment, LCA, discusses pre-production planning and environment goal setting.
  - ISO 14050 terms and definitions.
  - ISO 14062 discusses making improvements to environmental impact goals.
  - ISO 14063 Environmental communication – Guidelines and examples
  - ISO 14064 Measuring, quantifying, and reducing Greenhouse Gas emissions.
  - ISO 19011 which specifies one audit protocol

29.3.2. The National Wastelands Development Board (NWDB)

- The National Wastelands Development Board (NWDB) was set up under the Ministry of Environment & Forests in 1985 with the objective of
- to increase tree and other green cover on wastelands,
- to prevent good land from becoming wasteland, and
- to formulate within the overall nodal policy, perspective plans and programmes for the management and development of the wastelands in the country.
- In 1992, the Board was transferred to the Ministry of Rural Development, putting under a New Department of Wastelands Development under the charge of a Minister of State.

29.3.3. Bioassay

- Bioassay is a test in which organisms are used to detect the presence or the effects of any other physical factor, chemical factor, or any other type of ecological disturbance.

- Bioassays are very common in pollution studies. Bioassays can be conducted by using any type of organisms. However, the fish and insect bioassays are very common.
- The aim is to find out either lethal concentration or effective concentration causing mortality or other effects.
- Ultimately they are to be used for determination of safe concentration of a chemical or maximum acceptable toxicant concentration (MATC).
- The organism is exposed to different concentrations of a toxicant for a definite period and mortality, behavioral change or other signals of distress are noted periodically.
- Out of three types, static bioassay test is designed, where the organisms are exposed to the same toxicant solution for the whole experimental period. The other two are, renewal bioassay and flow-through bioassays.

29.3.4. Greeenwashing

- Greenwashing refers to a range of activities that companies or even countries indulge in to present misleading or dubious claims about their climate action.
- Also known as, green sheen, greenwashing is an attempt to capitalize on the growing demand for environmentally sound products.
- Greenwashing helps in boosting the image of the entity and help them garner benefits for things they do nothing against climate change.
- Prevalence of greenwashing: Greenwashing in the context of net-zero targets is being pursued by many corporations and sub-national governments.
- Governments: Developed countries are often accused of greenwashing their normal business investments in developing countries.
- They also greenwash their bilateral aid by highlighting climate co-benefits of the financial flows.
- Companies: The Volkswagen scandal, in which the German car company was found to have been cheating in emissions testing of its supposedly green diesel vehicles, was a case of greenwashing.
- Several other multinational corporations, including oil giants like Shell and BP, and Coca Cola have faced accusations of greenwashing.

GLOSSARY

- **Warm-blooded** is a term to describe animal species which have a relatively higher blood temperature, and maintain thermal homeostasis primarily through internal metabolic processes. Examples: Mammals and birds.
- **Cold-blooded** is a term often used to refer to animals that do not use their metabolism to maintain body temperature. Examples: reptiles, insects, arachnids, amphibians and fish
- **Aestivation** is a state of animal dormancy, characterized by inactivity and a lowered metabolic rate that is entered in response to high temperatures and arid conditions. It takes place during times of heat and dryness, the hot dry season, which is often but not necessarily the summer months. Invertebrate and vertebrate animals are known to enter this state to avoid damage from high temperatures and the risk of desiccation. Both terrestrial and aquatic animals undergo aestivation.
- **Hibernation** is a state of inactivity and metabolic depression in animals, characterized by lower body temperature, slower breathing, and lower metabolic rate. Hibernating animals conserve food, especially during winter when food supplies are limited, tapping energy reserves, body fat, at a slow rate. It is the animal's slowed metabolic rate which leads to a reduction in body temperature and not the other way around.
- **Reforestation** Is the restocking of existing forests and woodlands which have been depleted
- **Afforestation** is the establishment of a forest or stand of trees in an area where there was no forest
- **Deforestation** Is the removal of a forest or stand of trees where the land is thereafter converted to a non forest use.
- **Forest cover** is the presence of trees on lands more than one hectare in area with a tree canopy of more than 10 percent, irrespective of ownership and legal status.
- **Tree cover** comprises the tree patches outside forest area and exclusive of forest cover that has less than a minimum map-able area of one hectare.
- **Agroforestry** Is an integrated approach of using the interactive benefits from combining trees and shrubs with crops and livestock. It combines agricultural and forestry technologies to create more diverse, productive, profitable, healthy and sustainable land-use systems.
- **Habitat fragmentation** is the emergence of discontinuities (fragmentation) in an organism's preferred environment (habitat), causing population fragmentation.
- **Habitat destruction** - The process in which natural habitat is rendered functionally unable to support the species present. In this process, the organisms which previously used the site are displaced or destroyed, reducing biodiversity
- **Habitat conservation** is a land management practice that seeks to conserve, protect and restore, habitat areas for wild plants and animals, especially conservation reliant species, and prevent their extinction, fragmentation or reduction in range
- **Oligotrophic Lake** is a lake with low primary productivity, the result of low nutrient content. These lakes have low algal production, and consequently, often have very clear waters, with high drinking-water quality
- **Eutrophic lake** is a lake has high primary productivity due to excessive nutrients and is

subject to algal blooms resulting in poor water quality. The bottom waters of such bodies are commonly deficient in oxygen, ranging from hypoxic to anoxic.

- **Mesotrophic lakes** is a lake with an intermediate level of productivity, greater than oligotrophic lakes, but less than eutrophic lakes. These lakes are commonly clear water lakes and ponds with beds of submerged aquatic plants and medium levels of nutrients
- **Mull soil** is one characterised by large soil animals (especially plentiful earthworms), incorporation of organic matter through the topsoil and active bacterial decomposition.
- **Mor soil** is on the other hand characterised by smaller soil animals, the buildup of a litter layer on top and decomposition mainly led by fungi
- **Calcifuge** is a plant that does not tolerate alkaline soil.
- **Calcicole or Calciphyte** is a plant that does not tolerate acidic soil.
- **Ecotopes** are the smallest ecologically-distinct landscape features in a landscape mapping and classification system. As such, they represent relatively homogeneous, spatially-explicit landscape functional units that are useful for stratifying landscapes into ecologically distinct features for the measurement and mapping of landscape structure, function and change.
- **Ecozones** delineate large areas of the Earth's surface within which organisms have been evolving in relative isolation over long periods of time, separated from one another by geographic features, such as oceans, broad deserts, or high mountain ranges, that constitute barriers to migration
- **Productivity** or production refers to the rate of generation of biomass in an ecosystem.
- **Photoheterotrophs** are heterotrophic organisms that use light for energy, but cannot use carbon dioxide as their sole carbon source. Consequently, they use organic compounds from the environment to satisfy their carbon requirements. They use compounds such as carbohydrates, fatty acids and alcohols as their organic food
- **Chemotrophs** are organisms that obtain energy by the oxidation of electron donors in their environments
- **Phototrophs** are the organisms (usually plants) that carry out photosynthesis to acquire energy. They use the energy from sunlight to convert carbon dioxide and water into organic materials to be utilized in cellular functions such as biosynthesis and respiration.
- **Hemotrophs** are organisms that obtain energy by the oxidation of electron donors in their environments
- **Lithotroph** is an organism that uses an inorganic substrate to obtain reducing equivalents for use in biosynthesis or energy conservation via aerobic or anaerobic respiration
- **Lithophiles** are micro-organisms that can live within the pore interstices of sedimentary and even igneous rocks to depths of several kilometers
- **Organotroph** is an organism that obta hydrogen or electrons from organic substrates
- **Mixotroph** is a microorganism that can use a mix of different sources of energy and carbon.
- **Photic zone** or Euphotic zone is the depth of the water in a lake or ocean that is exposed to sufficient sunlight for photosynthesis to occur.
- **Biological pump** is the sum of a suite of biologically-mediated processes that transport carbon from the surface euphotic zone to the ocean's interior.
- **Standing crop** is the quantity or total weight or energy content of the organisms which are in a particular location at a particular time.
- **Endolith** is an organism that lives inside rock, coral, animal shells, or in the pores between mineral grains of a rock.
- **Detritivores** are heterotrophs that obtain nutrients by consuming detritus (decomposing organic matter). By doing so, they contribute to decomposition and the nutrient cycles. They

should be distinguished from other decomposers, such as many species of bacteria, fungi and protists, unable to ingest discrete lumps of matter, instead live by absorbing and metabolising on a molecular scale. However, the terms detritivore and decomposer are often used interchangeably

- **Carrying capacity** of a biological species in an environment is the maximum population size of the species that the environment can sustain indefinitely, given the food, habitat, water and other necessities available in the environment
- **Brackish water** is water that has more salinity than fresh water, but not as much as seawater. It may result from mixing of seawater with fresh water.
- **Gene pool** is the complete set of unique alleles in a species or population
- **Genetic erosion** is a process whereby an already limited gene pool of an endangered species of plant or animal diminishes even more when individuals from the surviving population die off without getting a chance to meet and breed with others in their endangered low population.
- **Bioterrorism** is terrorism involving the intentional release or dissemination of biological agents. These agents are (bacteria, viruses, or toxins), and may be in a naturally occurring or a human-modified form.
- **Bioleaching** is the extraction of specific metals from their ores through the use of living organisms. This is much cleaner than the traditional heap leaching using cyanide. Bioleaching is one of several applications within bio hydrometallurgy and several methods are used to recover copper, zinc, lead, arsenic, antimony, nickel, molybdenum, gold, silver, and cobalt.
- **Biochemical oxygen demand** or B.O.D. is the amount of dissolved oxygen needed by aerobic biological organisms in a body of water to break down organic material present in a given water sample at certain temperature over a specific time period.
- **Microclimate** is a local atmospheric zone where the climate differs from the surrounding area. The term may refer to areas as small as a few square feet or as large as many square miles.
- **Biopiracy** is the theft of genetic materials especially plants and other biological materials by the patent process. Biopiracy is a situation where indigenous knowledge of nature, originating with indigenous people, is exploited for commercial gain without permission from and with no compensation to the indigenous people themselves.
- **BioWeb** is the connotation for a network of web-enabled biological devices (e.g. trees, plants, and flowers) which extends an internet of things to the Internet of Living Things of natural sensory devices. The BioWeb devices give insights to real-time ecological data and feedback to changes in the environment
- **Biomass** is the amount of living or organic matter present in an organism. Biomass pyramids show how much biomass is present in the organisms at each tropic level, while productivity pyramids show the production or turnover in biomass.
- **Ecological footprint** is a measure of human demand on the Earth's ecosystems. It is a standardized measure of demand for natural capital that may be contrasted with the planet's ecological capacity to regenerate
- **Algal bloom** is a rapid increase or accumulation in the population of algae in an aquatic system. Algal blooms may occur in freshwater as well as marine environments.
- **Carbon footprint** is a measurement of all greenhouse gases we individually produce and has units of tonnes (or kg) of carbon dioxide equivalent. A carbon footprint is made up of the sum of two parts, the primary footprint and the secondary footprint.
- **The primary footprint** is a measure of our direct emissions of CO_2 from the burning of fossil fuels including domestic energy consumption and transportation (e.g. car and plane). We have direct control of these.

- **The secondary footprint** is a measure of the indirect CO_2 emissions from the whole lifecycle of products we use - those associated with their manufacture and eventual breakdown. To put it very simply – the more we buy the more emissions will be caused on our behalf.
- **Carbon diet** refers to reducing the impact on climate change by reducing greenhouse gas (principally CO_2) production, without lowering their standard of living
- **Greenhouse debt** or carbon debt is the measure to which an individual person, incorporated association, business enterprise, government instrumentality or geographic community exceeds its permitted greenhouse footprint and contributes greenhouse gases that contribute to global warming and climate change
- **Biocapacity** is the capacity of an area to provide resources and absorb wastes. When the area's ecological footprint exceeds its biocapacity, unsustainability occurs.
- **Global hectare** is a measurement of biocapacity of the entire earth - one global hectare is a measurement of the average biocapacity of all hectare measurements of any biologically productive areas on the planet.
- **Carbon credit** and carbon markets are a component of national and international attempts to mitigate the growth in concentrations of greenhouse gases (GHGs). One carbon credit is equal to one metric tonne of carbon dioxide, or in some markets, carbon dioxide equivalent gases. Carbon trading is an application of an emissions trading approach.
- **Oil spill** is a release of a liquid petroleum hydrocarbon into the environment due to human activity, and is a form of pollution. The term often refers to marine oil spills, where oil is released into the ocean or coastal waters
- **Gene banks** help preserve genetic material, be it plant or animal. In plants, this could be by freezing cuts from the plant, or stocking the seeds. In animals, this is the freezing of sperm and eggs in zoological freezers until further need.
- **Biobank** is a cryogenic storage facility used to archive biological samples for use in research and experiments
- **Xerosere** is a plant succession which is limited by water availability. It includes the different stages in a xerarch succession. Xerarch succession of ecological communities originated in extremely dry situation such as sand deserts, sand dunes, salt deserts, rock deserts etc
- **Earth Hour** is a global event organized by WWF and is held on the last Saturday of March annually, asking households and businesses to turn off their non-essential lights and other electrical applia for one hour to raise awareness towards th to take action on climate change.
- **Bioprospecting** is an umbrella term descr the discovery of new and useful biological samples and mechanisms, typically in less-developed countries, either with or without the help of indigenous knowledge, and with or without compensation. In this way, bioprospecting includes biopiracy and also includes the search for previously unknown compounds in organisms that have never been used in traditional medicine.
- **Poaching** is the illegal taking of wild plants or animals contrary to local and international conservation and wildlife management laws. Violations of hunting laws and regulations are normally punishable by law and, collectively, such violations are known as poaching.
- **Hunting** is the practice of pursuing any living thing, usually wildlife, for food, recreation, or trade. In present-day use, the term refers to lawful hunting, as distinguished from poaching, which is the killing, trapping or capture of the hunted species contrary to applicable law.
- **Wildlife** includes all non-domesticated plants, animals and other organisms. Domesticating wild

plant and animal species for human benefit has occurred many times all over the planet, and has a major impact on the environment, both positive and negative.

- **Wild crafting** is the practice of harvesting plants from their natural, or "wild" habitat, for food or medicinal purposes. It applies to uncultivated plants wherever they may be found, and is not necessarily limited to wilderness areas. Ethical considerations are often involved, such as protecting endangered species.
- **Conservation biology** is the scientific study of the nature and status of Earth's biodiversity with the aim of protecting species, their habitats, and ecosystems from excessive rates of extinction.
- **Extinction** is the end of an organism or of a group of organisms (taxon), normally a species.
- **Holocene extinction** refers to the extinction of species during the present Holocene epoch (since around 10,000 BC
- **Wildlife corridor** or Green corridor is an area of habitat connecting wildlife populations separated by human activities (such as roads, development, or logging). This allows an exchange of individuals between populations, which may help prevent the negative effects of inbreeding and reduced genetic diversity (via genetic drift) that often occur within isolated populations.
- **Biolink zones** are a land use category developed for biodiversity conservation and landscape adaptation under changing climates
- **Zero-emissions vehicle**, or ZEV, is a vehicle that emits no tailpipe pollutants from the onboard source of power.
- **Ocean de-oxygenation** is a term that has been suggested to describe the expansion of oxygen minimum zones in the world's oceans as a consequence of anthropogenic emissions of carbon dioxide. Oceanographers and others have discussed what phrase best describes the phenomenon to non-specialists.
- **Plasticulture** refers to the practice of using plastic materials in agricultural applications. The plastic materials themselves are often and broadly referred to as "ag plastics." Plasticulture ag plastics include soil fumigation film, irrigation drip tape/tubing, nursery pots and silage bags, but the term is most often used to describe all kinds of plastic plant/soil coverings. Such coverings range from plastic mulch film, row coverings, high and low tunnels, to plastic greenhouses.
- **Nanotoxicology** is the study of the toxicity of nanomaterials. Because of quantum size effects and large surface area to volume ratio, nanomaterials have unique properties compared with their larger counterparts.

CLIMATE CHANGE -

- **"Climate change"** means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.
- **"Greenhouse gases"** means those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation.
- **"Source"** means any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere.
- **"Reservoir"** means a component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored.
- **"Sink"** means any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.

Adaptation

- Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Adaptation Fund

- The Adaptation Fund was established to finance concrete adaptation projects and programmes in developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change.
- The Adaptation Fund is financed from the share of proceeds on the clean development mechanism project activities and other sources of funding. The share of proceeds amounts to 2% of certified emission reductions (CERs) issued for a CDM project activity.
- The Adaptation Fund is supervised and managed by the Adaptation Fund Board (AFB). The AFB is composed of 16 members and 16 alternates and meets at least twice a year.
- Upon invitation from Parties, the Global Environment Facility (GEF) provides secretariat services to the AFB and the World Bank serves as trustee of the Adaptation Fund, both on an interim basis.

Adaptation Committee

- As part of the Cancun Adaptation Framework, Parties established the Adaptation Committee to promote the implementation of enhanced action on adaptation in a coherent manner under the Convention through the following functions:
- Providing technical support and guidance to the Parties
- Sharing of relevant information, knowledge, experience and good practices
- Promoting synergy and strengthening engagement with national, regional and international organizations, centres and networks
- Providing information and recommendations, drawing on adaptation good practices, for consideration by the COP when providing guidance on means to incentivize the implementation of adaptation actions, including finance, technology and capacity-building
- Considering information communicated by Parties on their monitoring and review of adaptation actions, support provided and received

Alliance of Small Island States (AOSIS)

- An ad hoc coalition of low-lying and island countries.
- These nations are particularly vulnerable to rising sea levels and share common positions on climate change.
- The 43 members and observers are American Samoa, Antigua and Barbuda, Bahamas, Barbados, Belize, Cape Verde, Comoros, Cook Islands, Cuba, Dominica, Dominican Republic, Federated States of Micronesia, Fiji, Grenada, Guam, Guinea-Bissau, Guyana, Haiti, Jamaica, Kiribati, Maldives, Marshall Islands, Mauritius, Nauru, Netherlands Antilles, Niue, Palau, Papua New Guinea, Samoa, Sao Tome and Principe, Seychelles, Singapore, Solomon Islands, St. Kitts & Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Timor-Leste, Tonga, Trinidad and Tobago, Tuvalu, US Virgin Islands, and Vanuatu.

Bali Action Plan (BAP)

- Included in the Bali Road Map, agreed at the Conference of the Parties in Bali, Indonesia in 2007 (COP13), introduced AWG-LCA.

Bali Road Map

- The Bali Road Map was adopted at the 13th Conference of the Parties and the 3rd Meeting of the Parties in December 2007 in Bali.
- The Road Map is a set of a forward-looking decisions that represent the work that needs to be done under various negotiating "tracks" that is essential to reaching a secure climate future.
- It includes the Bali Action Plan, which charts the course for a new negotiating process designed to tackle climate change, with the aim of completing this by 2009.

- It also includes the AWG-KP negotiations, the launch of the Adaptation Fund, the scope and content of the Article 9 review of the Kyoto Protocol, as well as decisions on technology transfer and on reducing emissions from deforestation.

Biomass fuels or biofuels

- A fuel produced from dry organic matter or combustible oils produced by plants.
- These fuels are considered renewable as long as the vegetation producing them is maintained or replanted, such as firewood, alcohol fermented from sugar, and combustible oils extracted from soy beans.
- Their use in place of fossil fuels cuts greenhouse gas emissions because the plants that are the fuel sources capture carbon dioxide from the atmosphere.

Carbon market

- A popular (but misleading) term for a trading system through which countries may buy or sell units of greenhouse-gas emissions in an effort to meet their national limits on emissions, either under the Kyoto Protocol or under other agreements, such as that among member states of the European Union.
- The term comes from the fact that carbon dioxide is the predominant greenhouse gas, and other gases are measured in units called "carbon-dioxide equivalents."

Cartagena Group

- A collection of 27 countries seeking ambitious outcomes from the UNFCCC process and low carbon domestic output. Founded in 2010.
- Participating countries include Antigua and Barbuda, Australia, Bangladesh, Belgium, Colombia, Costa Rica, Ethiopia, France, Germany, Ghana, Indonesia, Malawi, Maldives, Marshall Islands, Mexico, Netherlands, New Zealand, Norway, Peru, Samoa, Spain, Tanzania, Thailand, Timor-Leste, Uruguay, UK and the European Commission.

Certified emission reductions (CER)

- A Kyoto Protocol unit equal to 1 metric tonne of CO_2 equivalent. CERs are issued for emission reductions from CDM project activities.
- Two special types of CERs called temporary certified emission reduction (tCERs) and long-term certified emission reductions (lCERs) are issued for emission removals from afforestation and reforestation CDM projects.

Clean Development Mechanism (CDM)

- A mechanism under the Kyoto Protocol through which developed countries may finance greenhouse-gas emission reduction or removal projects in developing countries, and receive credits for doing so which they may apply towards meeting mandatory limits on their own emissions.

Net Zero Emission

- Net zero – means amount of green house gas produced is equal to the amount of greenhouse gas removed from the atmosphere.

"CO_2 equivalent"?

- GHG emissions/removals can be expressed either in physical units (such as grams, tonnes, etc.) or in terms of CO_2 equivalent (grams CO_2 equivalent, tonnes CO_2 equivalent, etc.).
- The conversion factor from physical units to CO_2 equivalent is the Global Warming Potential (GWP) of the corresponding GHG.
- If X Gg of CH_4 is to be expressed in terms of CO2 equivalent, then it is multiplied by 21, which is GWP of CH_4 over 100 years timescale.

Coalition for Rainforest Nations

- A voluntary grouping of largely developing nations with rainforests which addresses issues surrounding environmental sustainability specific to tropical rainforests.

- Participation does not necessarily imply that countries adhere to any specific domestic policies or negotiating positions within the international context.
- At September 2011, the group included Argentina, Bangladesh, Belize, Cameroon, Central African Republic, Chile, Congo, Costa Rica, Cote d'Ivoire, DR Congo, Dominica, Dominican Republic, Ecuador, Equatorial Guinea, El Salvador, Fiji, Gabon, Ghana, Guatemala, Guyana, Honduras, Indonesia, Jamaica, Kenya, Lesotho, Liberia, Madagascar, Malaysia, Nicaragua, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Samoa, Sierra Leone, Solomon Islands, Suriname, Thailand, Uruguay, Uganda, Vanuatu and Vietnam.
- Countries participate on a voluntarily basis primarily through unified negotiating positions, workshops and collaborative programs.

Emission reduction unit (ERU)

- A Kyoto Protocol unit equal to 1 metric tonne of CO_2 equivalent. ERUs are generated for emission reductions or emission removals from joint implementation projects.

Emissions trading

- One of the three Kyoto mechanisms, by which an Annex I Party may transfer Kyoto Protocol units to, or acquire units from, another Annex I Party.
- An Annex I Party must meet specific eligibility requirements to participate in emissions trading.

Fugitive fuel emissions

- Greenhouse-gas emissions as by-products or waste or loss in the process of fuel production, storage, or transport, such as methane given off during oil and gas drilling and refining, or leakage of natural gas from pipelines

Global warming potential (GWP)

- An index representing the combined effect of the differing times greenhouse gases remain in the atmosphere and their relative effectiveness in absorbing outgoing infrared radiation.

Greenhouse gases (GHGs)

- The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N20).
- Less prevalent --but very powerful -- greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6).

"Hot air"

- Refers to the concern that some governments will be able to meet their targets for greenhouse-gas emissions under the Kyoto Protocol with minimal effort and could then flood the market with emissions credits, reducing the incentive for other countries to cut their own domestic emissions.

Intergovernmental Panel on Climate Cha (IPCC)

- Established in 1988 by the World Meteorological Organization and the UN Environment Programme, the IPCC surveys world-wide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change.
- The IPCC also works on methodologies and responds to specific requests from the Convention's subsidiary bodies. The IPCC is independent of the Convention.

Land use, land-use change, and forestry (LULUCF)

- A greenhouse gas inventory sector that covers emissions and removals of greenhouse gases resulting from direct human-induced land use, land-use change and forestry activities.

Least Developed Countries Fund

- The LDCF was established to support a work programme to assist Least Developed Country Parties (LDCs) carry out, inter alia, the preparation and implementation of national adaptation programmes of action (NAPAs).
- The Global Environment Facility (GEF), as the entity that operates the financial mechanism, has been entrusted to operate this fund.

Protocol

- An international agreement linked to an existing convention, but as a separate and additional agreement which must be signed and ratified by the Parties to the convention concerned.
- Protocols typically strengthen a convention by adding new, more detailed commitments.

Quantified Emissions Limitation and Reduction Commitments (QELROs)

- Legally binding targets and timetables under the Kyoto Protocol for the limitation or reduction of greenhouse-gas emissions by developed countries.

Registries, registry systems

- Electronic databases that tracks and records all transactions under the Kyoto Protocol's greenhouse-gas emissions trading system (the "carbon market") and under mechanisms such as the Clean Development Mechanism.
- "Registry" may also refer to current discussions on a system for inscribing nationally appropriate mitigation actions.

Rio Conventions

- Three environmental conventions, two of which were adopted at the 1992 "Earth Summit" in Rio de Janeiro: the United Nations Framework Convention on Climate Change (UNFCCC), and the Convention on Biodiversity (CBD), while the third, the United Nations Convention to Combat Desertification (UNCCD), was adopted in 1994.
- The issues addressed by the three treaties are related -- in particular, climate change can have adverse effects on desertification and biodiversity -- and through a Joint Liaison Group, the secretariats of the three conventions take steps to coordinate activities to achieve common progress.

Rio+20

- The United Nations Conference on Sustainable Development, to be held in Rio de Janeiro, Brazil, on June 4-6, 2012.
- The first UN Conference on Sustainable Development was the "Earth Summit", held in 1992, and it spawned the three "Rio Conventions"-- the UNFCCC, the UNCCD, and the UNCBD.

Special Climate Change Fund (SCCF)

- The Special Climate Change Fund (SCCF) was established under the Convention in 2001 to finance projects relating to: adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification.
- The Global Environment Facility (GEF), as an operating entity of the financial mechanism, has been entrusted to operate the SCCF.

"Spill-over effects" (also referred to as "rebound effects" or "take-back effects")

- Reverberations in developing countries caused by actions taken by developed countries to cut greenhouse-gas emissions.
- For example, emissions reductions in developed countries could lower demand for oil and thus international oil prices, leading to more use of oil and greater emissions in developing nations, partially off-setting the original cuts.
- Current estimates are that full-scale implementation of the Kyoto Protocol may cause 5 to 20 per cent of emissions reductions in industrialized countries to "leak" into developing countries.

Umbrella group

- A loose coalition of non-European Union developed countries formed following the adoption of the Kyoto Protocol.
- Although there is no formal membership list, the group usually includes Australia, Canada, Iceland, Japan, New Zealand, Norway, the Russian Federation, Ukraine, and the United States.

2 degrees C goal

- A 2 degrees Celsius/Centigrade rise in global temperatures from pre-industrial levels is the highest rise we can afford if we want a 50% chance of avoiding the worst effects of climate change.
- The current concentration of carbon dioxide in the atmosphere is 370 parts per million
- The concentration of carbon dioxide equivalent in the atmosphere that the world must stay at or under to stay true to the 2 degrees Celsius goal is 450 parts per million.

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6. List of INDIA's Biosphere Reserves in UNESCO'S WNBR.

S.No	NAME	STATE
1.	Nilgiri	Tamil Nadu, Kerala, Karnataka
2.	Gulf of Mannar	Tamil Nadu
3.	Sunderbans	West Bengal
4.	Nanda Devi	Uttarakhand
5.	Nokrek	Meghalaya
6.	Pachmarhi	Madhya Pradesh
7.	Similipal	Orissa
8.	Achanakmar-Amarkantak	Chhattishgarh
9.	Great Nicobar	Andaman & Nicobar
10.	Agasthyamalai Biosphere Reserve	Kerala and Tamil Nadu
11.	Khangchendzonga National Park	Sikkim

7.1 Natural World Heritage Sites

World Heritage Site is a place that is listed by the UNESCO as of special cultural or physical significance.

S. No.	Name of WH Site	State Location
1	Kaziranga National Park	Assam
2	Keoladeo Ghana National Park	Rajasthan
3	Manas Wildlife Sanctuary	Assam
4	Nanda Devi National Park and Valley of Flowers	Uttarakhand
5	Sunderbans National Park	West Bengal
6	Western Ghats	Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala
7	Great Himalayan National Park	Himachal Pradesh

7.2. Biodiversity Heritage Sites

"Biodiversity Heritage Sites" (BHS) are well defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal and inland waters and, marine having rich biodiversity comprising of any one or more of the following components: richness of wild as well as domesticated species or intra-specific categories, high endemism, presence of rare and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic/cultivated species or their varieties, past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.

S. No.	Name of the Site	State
1	Majuli	Assam
2	Hajong Tortoise Lake	Assam
3	Borjuli Wild Rice Site	Assam
4	Purvatali Rai	Goa
5	Sacred Grove at Sural Bhatori Monastery	Himachal Pradesh
6	High Altitude Meadow	Himachal Pradesh
7	Nallur Tamarind Grove	Karnataka
8	Hogrekan	Karnataka
9	Ambaraguda	Karnataka
10	University of Agricultural Sciences, GKVK Campus, Bengaluru	Karnataka
11	Asramam	Kerala
12	Naro Hills	Madhya Pradesh
13	Patalkot	Madhya Pradesh
14	Amarkantak	Madhya Pradesh
15	Glory of Allapalli	Maharashtra
16	Bambarde Myristica Swamps	Maharashtra
17	Ganeshkhind Garden	Maharashtra
18	Landorkhori	Maharashtra